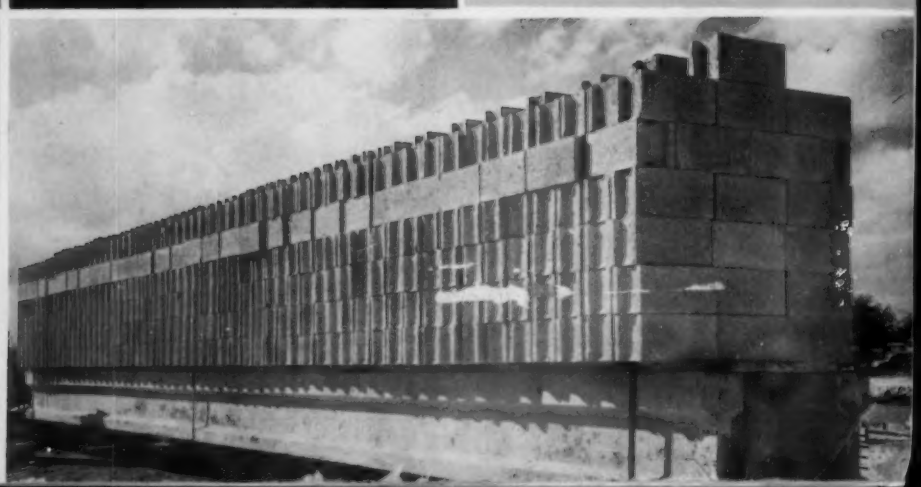
CONCRETE

OUR 52ND YEAR

Serving the Concrete Industries

JULY 1956



SPECTACULAR ROOF DESIGN—
St. Louis Air Terminal Building

Airport Terminal Building, St. Louis, Mo. Architects: Hellmuth, Yamasaki & Leinweber; Structural Engineer: William C. E. Becker; Consultants on Dome Design: Roberts and Schaefer of Chicago; Chief Engineer City of St. Louis: W. R. Crecelius; General Contractor: L. & R. Construction Co.; Design of Concrete Mix: Robert W. Hunt Co.; Pozzolith Ready-Mixed Concrete—used throughout—produced by Majestic Materials Corp. All of St. Louis, Missouri, except as noted.

POZZOLITH employed for improved Concrete Control

Concrete with minimum shrinkage and high flexural strength was needed for the thin shell roof construction of this strikingly modern air terminal.

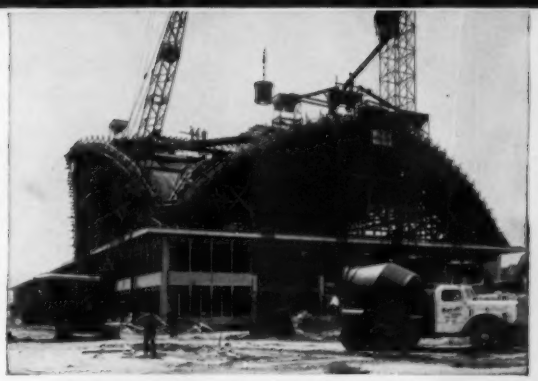
Another important requirement was control of the rate of hardening—to provide normal set for moderate weather and a retarded set for the 100 degree temperatures which prevailed during part of the construction. These results were obtained with Pozzolith.

Pozzolith with its adaptations is key to control of:

1. *water content*...makes possible lowest unit water content for a given workability.
2. *entrained air*...provides optimum air content without sacrificing other desired qualities.
3. *rate of hardening*...gives desired handling and finishing time under widely varying job conditions.

Over 115 million cubic yards of concrete have been produced with Pozzolith—evidence of the fact that its performance has proved dependable over the years.

Any of our more than 75 field technical men will be glad to demonstrate the full advantages of Pozzolith for your project.



Upper View: Shows roof construction. *Lower View:* Shows placing and finishing concrete. Each dome contains about 400 cu. yds. of concrete and 60 tons of reinforcing steel, and was poured in one continuous operation.

The MASTER BUILDERS Co

Division of American-Marietta Company

CLEVELAND 3, OHIO • TORONTO, ONT.

JULY, 1956

CONCRETE

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FEATURES FOR THIS MONTH

New Developments in Prestressing 29

A summary of some of the newest and best ideas in the prestressed concrete field, as they were discussed recently at the second annual convention of the Prestressed Concrete Institute in Hollywood, Florida. By H. H. Edwards

The Ready-Mixed Concrete Industry 30

Results of the National Ready-Mixed Concrete Association's fifth annual survey of the industry, compared with previous data, gives a comprehensive measure and evaluation of the state of the business today. By Kenneth E. Tobin, Jr.

School For Block Makers 33

The Besser Company's school at Alpena, Michigan, is a unique experiment in education and also in public relations. Here concrete men from all over the country get together to exchange ideas and to learn better ways of manufacturing better products.

Letter Symposium on Corrosion 36

What causes corrosion in high-pressure steam cylinders? A letter to the editor has touched off an interesting discussion on this highly controversial question and has brought several suggested solutions to the problem.

Plant Discipline Doesn't Just Happen 38

Here is a sensible, expertly prepared guide which should prove of value to every factory owner and manager who wishes to improve discipline in his plant and strengthen employer-employee relations.

No Place for Neutrality—Editorial 64

In which the editor views with some alarm the tendencies of certain groups in the building industry to tear each other apart in public, to the detriment of the concrete business as a whole.

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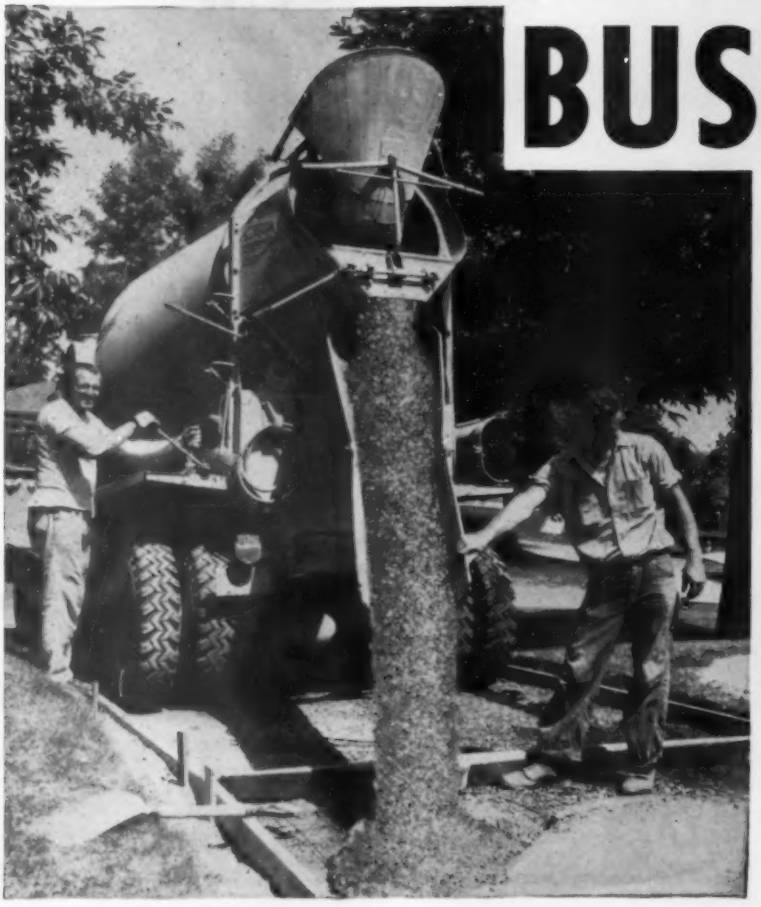
EPA

CHARGING | MIXING | DISCHARGING

IT REALLY MEANS BUSINESS!

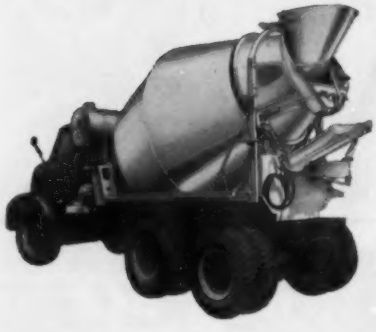


- Pours ordinary 4 to 6 inch slump concrete at the rate of a yard every 10 to 12 seconds—1 to 2 inch slump concrete at the rate of a yard every 25 to 30 seconds. THAT'S REAL MONEY-MAKING PERFORMANCE!
- *Exclusive TRANSCRETE hopper swings in for charging—swings out for discharge—so concrete can come through big UNOBSTRUCTED opening in full, easily controlled stream.*
- The handiest, simplest chute arrangement of all! Easier to handle on any kind of pour—no matter how tough the job! (Hydraulic spout lift optional equipment)
- *America's only truck mixer with the CMC FLOATING DRIVE that's guaranteed trouble free. This proven drive eliminates all the troubles of ordinary rigid drives—your assurance that TRANSCRETE will be on the job every day—year in year out.*

TRANSCRETE®

- Take TRANSCRETE'S many time-tested, proven features—add to them the NEW 75" diameter drum head and 16° slope FOR SHORTER OVERALL LENGTH—and it's no wonder TRANSCRETE beats 'em all a country mile for pouring more and better concrete—easier, faster—and at less cost!

There's a size TRANSCRETE (4 models, from 3½ to 7 yard mixing capacities) to do any job in the book. Get full details today. Write CONSTRUCTION MACHINERY COMPANY, Waterloo, Iowa.



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power—

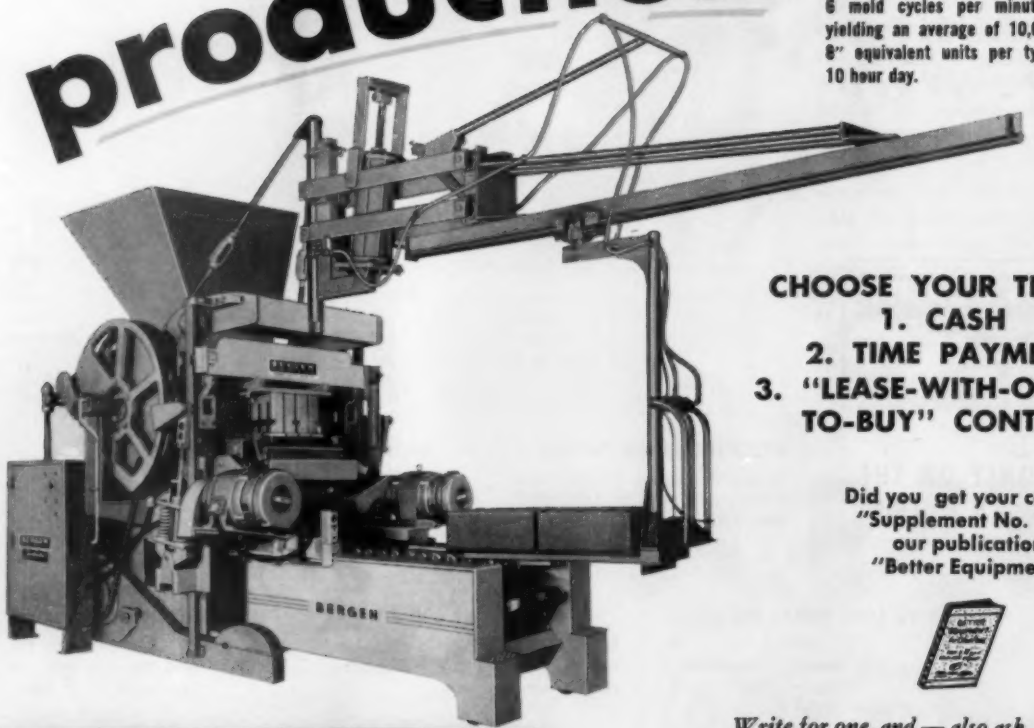
All motors and component parts, designed specifically to deliver "super-power" to meet today's demand for higher production.

ruggedness—

Engineered and built to provide continuous high-speed operation under the most exacting operational conditions.

production—

Increase your production up to 6 mold cycles per minute — yielding an average of 10,000—8" equivalent units per typical 10 hour day.



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2. TIME PAYMENTS
3. "LEASE-WITH-OPTION-TO-BUY" CONTRACT

Did you get your copy of "Supplement No. 1" to our publication, "Better Equipment"?

Write for one, and — also ask for free literature and prices on any or all our block plant machines or accessories.

BERGEN
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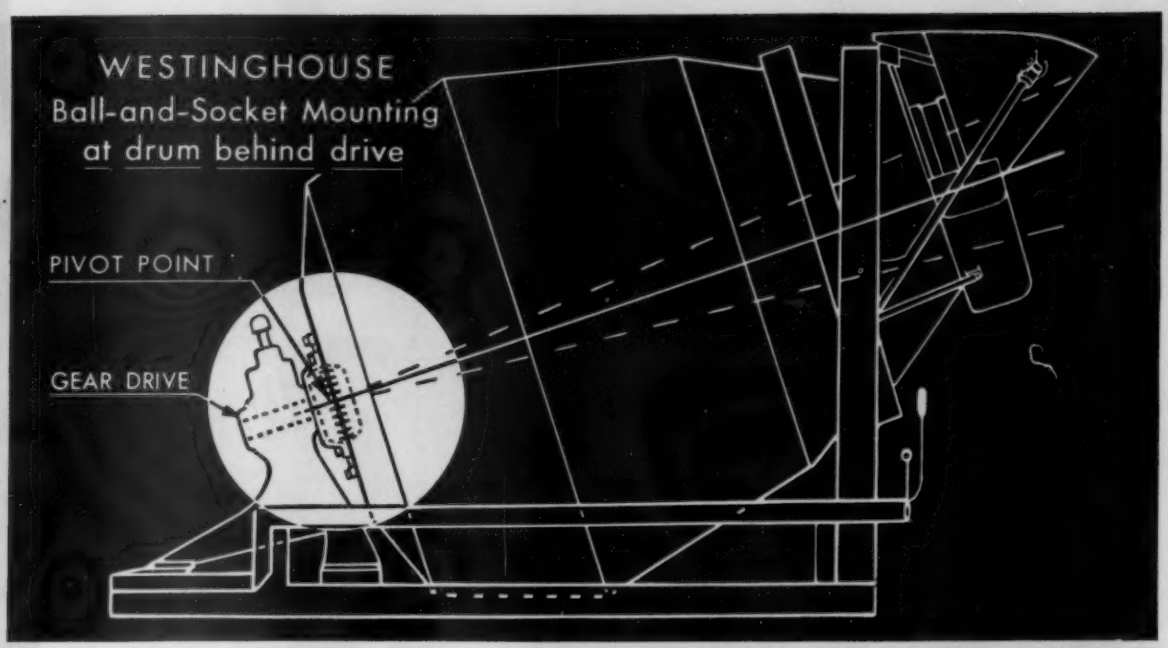
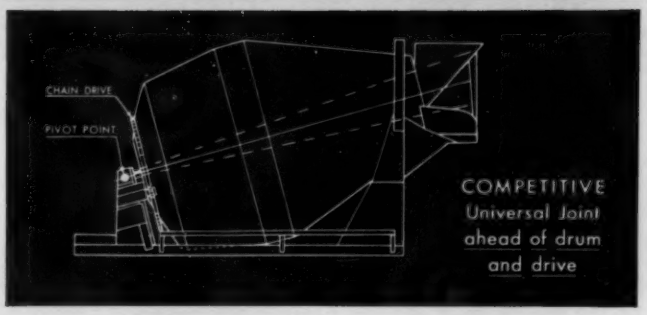
NUTLEY, NEW JERSEY

Cable Address: "BERGENCO" (Nutley, N. J.)



here is the *BIG DIFFERENCE* between WESTINGHOUSE and all other TRANSIT MIXERS



The drums on all transit mixers, except Westinghouse, are driven either by open chain or exposed rack and pinion. In spite of constant attention and lubrication such drives are subject to abrasive wear which results in jerky operation, breakage and high maintenance cost. The front drum mounting is *ahead* of such drives (see lower drawing). When the mixer travels over or stands on uneven ground the truck and mixer frames weave (as suggested by dotted lines in sketch) and the drive chain becomes too loose or too tight or the gear drive is thrown out of alignment causing excessive wear.

Now see top sketch. The Westinghouse drum is driven by husky, solidly mounted gears which are *fully enclosed*—a patented feature. They are subjected to no more wear and need no more attention than a conventional auto or truck transmission. A large drum-mounted socket with internal teeth engages a gear-driven ball with external teeth to complete the drum drive and form the front drum mounting. Since this mounting (and pivot point) is *behind* the drum drive, drum movement, caused by frame weaving, puts no stresses on the driving mechanism as is the case with chain or rack and pinion drives.

This big difference alone is causing knowing operators to switch to Westinghouse and there are other features you will like in these strictly quality machines. Westinghouse Transit Mixers, available in 4½ to 6½ yd. sizes, are fully described in a new, highly-illustrated Bulletin 256. Write today for your copy.

TRANSIT WESTINGHOUSE MIXERS

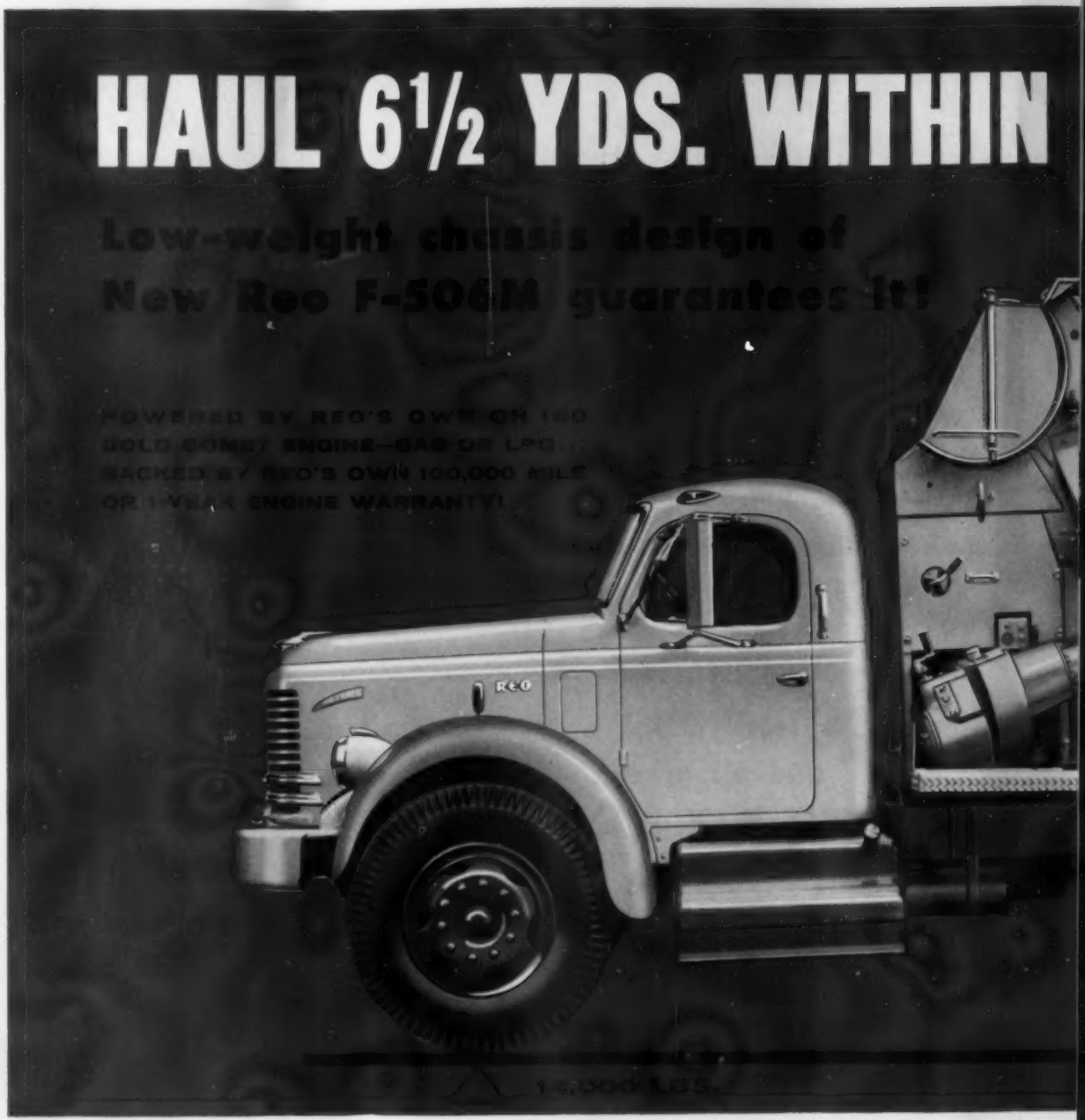
WESTINGHOUSE TRANSIT MIXER DIVISION
LeTourneau-Westinghouse Company

INDIANAPOLIS, INDIANA

HAUL 6½ YDS. WITHIN

Low-weight chassis design of New Reo F-506M guarantees it!

POWERED BY REO'S OWN 160 GOLD COMET ENGINE—GAS OR LPG BACKED BY REO'S OWN 100,000 MILE OR 1 YEAR ENGINE WARRANTY!



The certified chassis weight of Reo's new F-506M is 11,240 lbs. The official weighmaster's receipt proves how it can haul 6½ yds. of concrete and stay well within legal limits. The new Reo F-506M is designed and built specifically for mixer use. Its increased payload is made possible by Reo's new high-strength, low-weight *double-side-rail frame construction.*

The new Reo F-506M actually hauls up to 2 yards more than the average mixer chassis. And it places as much as 6,000 pounds more on the front axle than other conventional mixer trucks.

Reo full power steering, which is standard, makes maneuvering easy in tight places anywhere.

The new F-506M is powered by Reo's own 160 hp short-stroke, wet-sleeve Gold Comet Engine. Plenty of power for both truck and mixer. And, it's backed by Reo's famous *100,000 mile or one year warranty.*

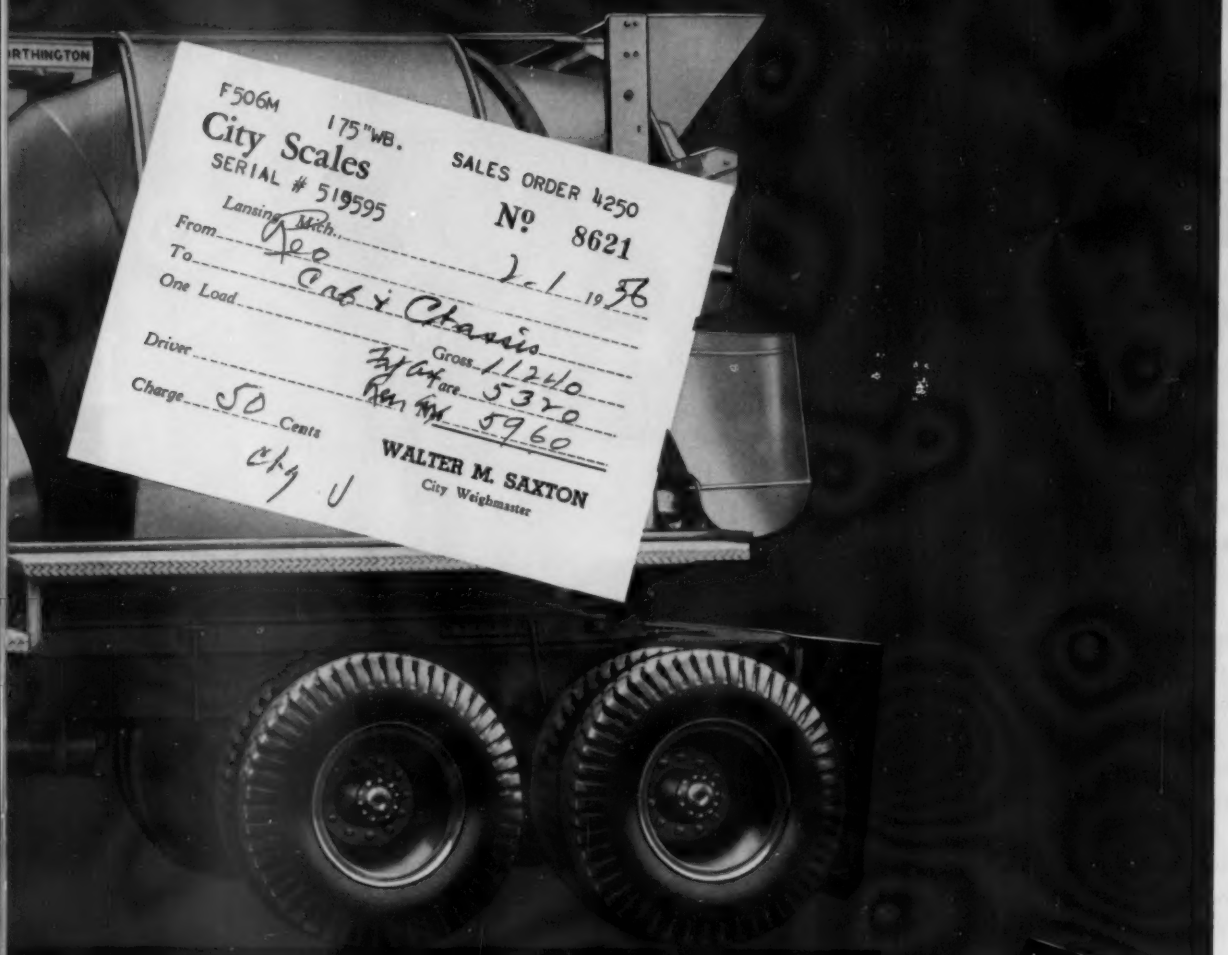
Reo's exclusive *front-axle-payload* design places more weight forward—giving you an extra 2 cubic yards of concrete every trip. With it, you can haul your regular daily volume with fewer trucks and drivers . . . or increase volume without increasing your fleet.

For states that permit greater axle loadings than 32,000 lbs., Reo builds the F-536M—52,000 lbs. G.V.W.

Additional hundreds of pounds can be added to the carrying capacity of the new Reo F-506M with Reo's optional front-end power take-off. The PTO also eliminates extra fuel and maintenance costs of the mixer's auxiliary power unit.

Call your Reo branch or distributor today and get the facts on the Reo that's right for you. Mail the coupon for full information.

32,000 lb. TANDEM LIMIT



IT THRIVES ON HARD WORK

Columbia's MODEL 8 BLOCK MACHINE

And Here's WHY!

Highest quality material! Extra built-in strength factor to guard against breakage or distortion. Solid, heavy welded plate frame.

Fewer moving parts! No cams, levers, gears, belts, pulleys, gear head motors, shear pins, etc.

All parts completely covered! Sealed, oversized bearings insure longer life.

Automatic operation requires minimum operator attention! Complete cycle in 10 seconds when making 4-inch high block . . . 15 seconds or faster when making 8-inch high units.

Columbia MODEL 8

Columbia's Model 8 including: Pallet feeder, mold, feed box agitator, electronic controls and panel, all motors and switches, pumping unit and electronic height and density control.

$10,385

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Investigate our "Pay as You Depreciate" finance plan . . . terms up to 6 years.

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2-WAY RADIO

makes satisfied customers for Travers Supply Co. of Decatur, Ill.

Photos Courtesy Decatur Herald Review

SPEEDS READY-MIX CONCRETE DELIVERY

Direct from the site, Ralph Calfee radios dispatcher John Mosser that another yard is needed to complete the job.

HERE'S HOW RADIO HELPS YOU

John Stoune, Travers' manager, was arriving at a job in his radio equipped station wagon. Dispatcher Jim Mosser radioed, wondering about a gravel truck due on the job. Stoune answered, "He's dumping the load now—should be back in 20 minutes." Dispatcher Mosser knew exactly when he could schedule that truck for another job. A mixer returning to the plant was heard reporting mechanical trouble. A service truck was immediately sent to him and a spare truck dispatched to fill his next order—as much as an hour saved, not to mention the finisher's temper if he had run out of cement.

If forms aren't ready, the dispatcher gets the report in 30 seconds and can direct the mixer to another site nearby. When an estimate runs short, a fast radio call—direct from the job—gets the concrete there to finish the job. Loose ends at the end of the day are cleaned up easier with radio—drivers and batch plant men get home on time, and expensive overtime payroll is slashed.

With constant dispatcher contact and control, every truck does a bigger job every day, making a more efficient, more profitable operation. And customers are kept serviced, happy and *loyal*.

HERE'S WHY MOTOROLA DOES THE JOB BETTER

Motorola consistently supplies more mobile and portable radio than all others combined . . . proof of acceptance, experience and quality. The only COMPLETE radio communications service—specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease.

VERSATILE—Motorola produces the greatest variety of 2-way radio equipment available—equipment that can be combined to form a custom-made system at production line prices.

RUGGED—It is built to take the severe beating that any ready-mix work imposes on it—proven in use for long life, dependability and economy.

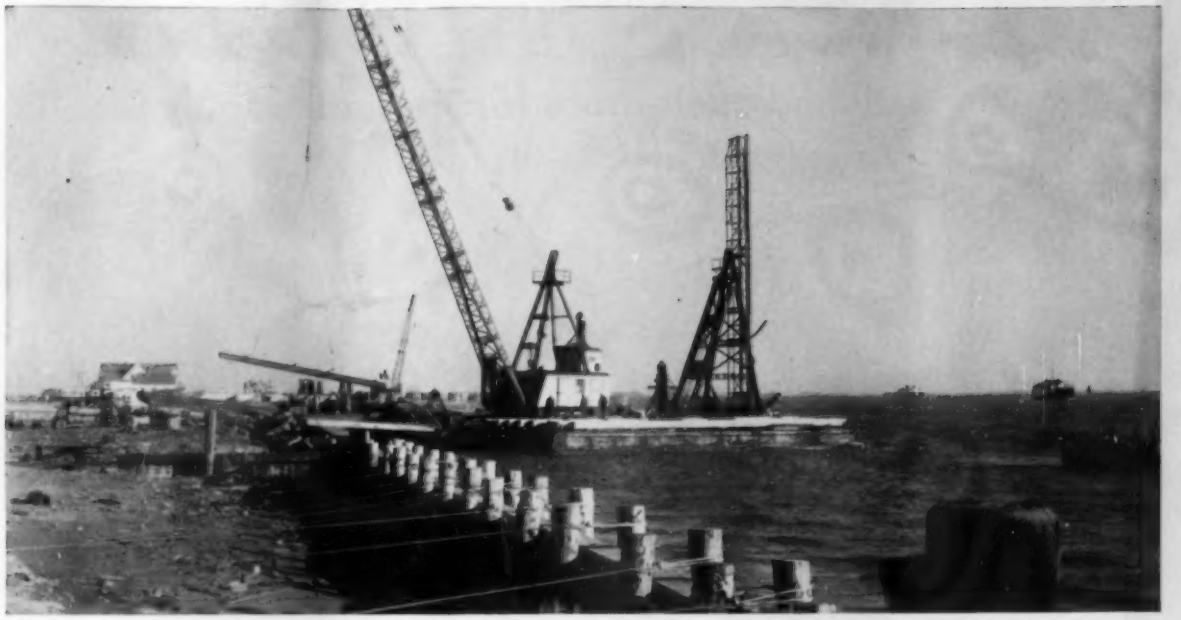
SERVICE—There is a Motorola Service Station near you. Motorola offers the most complete national service set-up—700 Authorized Service Stations, on call 24 hours a day.

TERMS—You can have Motorola 2-way radio on purchase, time payment, or lease (with or without equity).

Get the *full* facts from a Motorola Communications Engineer. Write, phone or wire TODAY!

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.

A Subsidiary of Motorola, Inc., 4501 Augusta Boulevard, Chicago 51, Illinois



EFFICIENT WORK BARGE SET-UP consisted of revolving derrick with 130′ boom and 4-way pile driver.

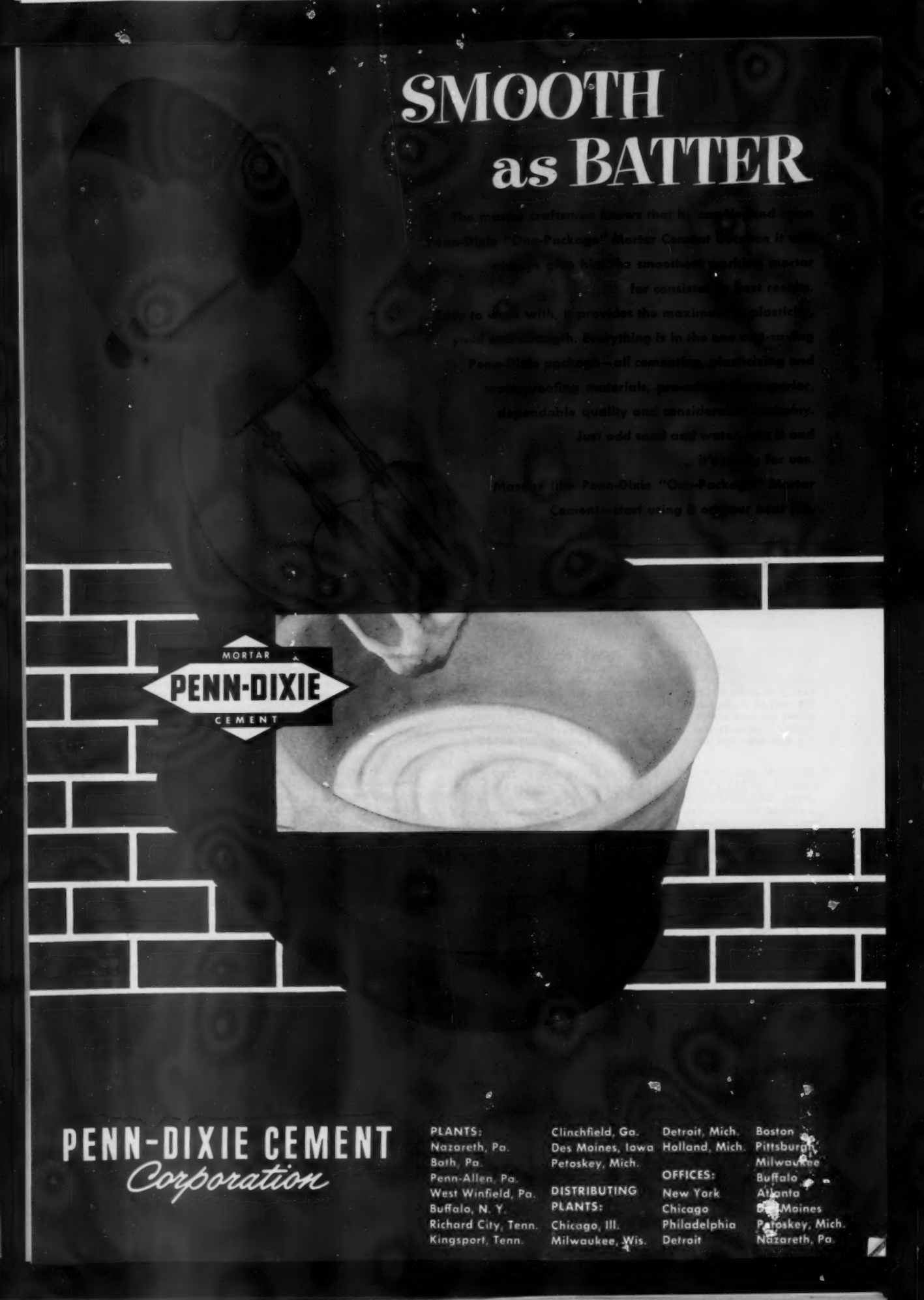
Prestressed wharf piles resist side loads and salt water

FOR ESSO STANDARD OIL'S new bulk oil terminal at Newport News, Va., Tidewater Construction Corp. has erected a wharf on concrete piling of interesting design. The piles, (72′ to 77′ long and 18″x18″ in cross section with 8″ dia. hollow core) were cast at the site and prestressed with sixteen ⅜″ cables pretensioned under a total load of 112 tons. This prestressing stiffens the piles against side loads created by the thrust and pull of loaded tankers and barges. It also holds closed any cracks which develop in the concrete, so as to prevent exposure of the steel reinforcing to salt water.

The high early strength concrete needed for this construction was supplied by an 8½ bag mix properly processed in truck mixers of certified design, capacity, mixing speed and water control accuracy. It tested 4000 psi after 72 hours.

21 PILES AT A TIME were cast and prestressed in 7 lines of 3 piles each. Forms were reused 12 times.

CONCRETE was placed and vibrated around fibre Sonovoid tube, centered in form to create a weight-saving, cost-saving hollow core.



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Atlanta
Des Moines
Petoskey, Mich.
Nazareth, Pa.

Reading for Profit

All of the following books are available from Concrete Publishing Corp., 400 West Madison Street, Chicago 6, Ill. Prices are for cash with order and include postage.

Good Books for Concrete Men

MANUFACTURE OF CONCRETE MASONRY UNITS. By William Grant. Published 1952. 184 pages, 19 chapters, 20 charts, 18 tables. Complete operating manual of up-to-the-minute practice showing how to produce top quality concrete block at the lowest possible cost. Rated by block producers everywhere as the best book on the subject ever published. *PRICE* $4.00

CONCRETE PRODUCTS AND CAST STONE. By H. L. Childe. 272 pages, 252 illustrations. Revised 1949. Details the manufacture of precast concrete, concrete products and cast stone. Full information on foamed slag, wood-wool, consolidation by vibration and other manufacturing processes and materials. *PRICE* $3.15

MOULDS FOR CAST STONE AND PRECAST CONCRETE. By F. Burren and G. R. Gregory. 96 pages. Information on wood and plaster mold making so prepared that a novice without previous experience can make good, inexpensive molds. Large, easy-to-follow drawings with concise explanatory instructions are based on actual molds used by experienced mold makers. *PRICE* $1.60

BUILDING ESTIMATOR'S REFERENCE BOOK. By Frank R. Walker. The new Twelfth Edition, revised and rewritten. 1,780 pages containing the latest estimating and cost data on everything that goes into building construction from foundation to the finishing coat of paint. Can be used in any locality, regardless of local prices or wage scales. Included free is the new Vest Pocket Estimator, a separate book of 220 pages of up-to-the-minute estimating and cost data in condensed tabular form. *PRICE* $12.00

DESIGN AND CONSTRUCTION OF FORMWORK FOR CONCRETE STRUCTURES. By A. E. Wynn. Revised 1951. 312 pages, 229 illustrations, 9 folders, 11 design tables. Complete designs for formwork for every type of plain and reinforced concrete structure, from simple footings to arch bridges, with tables from which the sizes and quantities of timber required for any type or size of structure can be seen at a glance. *PRICE* $6.15

CONCRETE CONSTRUCTION MADE EASY. By Leslie Turner and Albert Lakeman. Reprinted 1948. 118 pages, 69 illustrations, 16 tables. A practical book that solves problems in design and erection of any type concrete structure. Full designs with tables and all necessary information for building foundations, walls, columns, floors, roofs, staircases, beams, water tanks, retaining walls, lintels, formwork, saw-tooth roofs, etc. Written clearly and plainly. *PRICE* $2.10

ELEMENTARY GUIDE TO REINFORCED CONCRETE. By Albert Lakeman. Revised 1950. 88 pages, 79 illustrations. Clarifies principles governing design of reinforced concrete for the reader who has no previous knowledge of the subject. Simple explanations are illustrated with clearly drawn diagrams that make the text readily understandable for the beginner. *PRICE* $1.60

REINFORCED CONCRETE DESIGNER'S HANDBOOK. By Chas. E. Reynolds. Revised 1951. 344 pages, 69 tables. 40 illustrations, 106 examples. A standard work of design data for everyday use. Has large, easily read design tables that cover every type of reinforced concrete structure—with fully worked examples, short cuts and simplified methods proved in practice and essential for rapid solutions of problems. *PRICE* $5.20

PRESTRESSED CONCRETE. By Kurt Billig. Published 1953. 470 pages, 119 graphs, tables and drawings, 31 illustrations. The first of three parts deals with general data and fundamentals, the second with the design of prestressed structures, the third with design problems and a number of numerical examples. Each chapter is followed by an extensive bibliography. Included is Dr. Billig's proposed Code of Practice for prestressed concrete. *PRICE* $9.00

PRESTRESSED CONCRETE STRUCTURES. By August E. Komendant. Published 1952. 261 pages, 124 graphs, drawings and tables, 34 illustrations. A comprehensive discussion of prestressed concrete in a brief and simple form for the use of men in the field as well as those engaged in research. Covers general considerations; physical properties of materials; changes of forces and stresses due to plastic flow and shrinkage; and representative prestressed structures. *PRICE* $6.00

PRESTRESSED CONCRETE. By Gustave Magnel. Revised 1954. 345 pages, 328 illustrations. Contains both the theories of prestressing and examples of its use. Chapter subjects include: the principle of prestressed concrete; methods of prestressing; statically determinate beams; continuous beams; tests; creep of steel and concrete; buckling during prestressing; effect on prestress of time and superimposed load; permissible stresses; applications of prestressed concrete; and prestressed precast concrete. *PRICE* $8.00

PRINCIPLES AND PRACTICES OF PRESTRESSED CONCRETE. By P. W. Abeles, D. Sc. (Vienna) and member Institute of Structural Engineers. First American edition, with all notations adapted to the American standard. Textbook of 112 pages which discusses thoroughly the elementary principles of prestressed concrete as well as its applications in practice. *PRICE* $3.75

DESIGN OF PRESTRESSED CONCRETE STRUCTURES. By T. Y. Lin. New 1955. 456 pages. 242 illustrations. Comprehensive coverage of all phases of prestressed concrete structures, emphasizing American methods and conditions. Formulas, tables and graphical methods are so introduced that both preliminary and final designs can be made with ease. Costs of prestressing are also considered and prestressed lift slabs and pretensioning products are described. *PRICE* $11.50

SIMPLIFIED MASONRY PLANNING AND BUILDING. By J. Ralph Dalzell. New 1955. 376 pages. 182 illustrations. Practical, step-by-step guidance for planning and building all common types of concrete, concrete block, stucco and similar masonry structures. Includes basic information on cement, concrete and mortar. *PRICE* $5.00

CONCRETE SURFACE FINISHES, RENDERING AND TERRAZZO. By W. S. Gray and H. L. Childe. Reprinted 1948. 124 pages, 132 illustrations. Detailed descriptions of every practical method of finishing concrete and improving the appearance of old and new concrete structures. *PRICE* $3.10

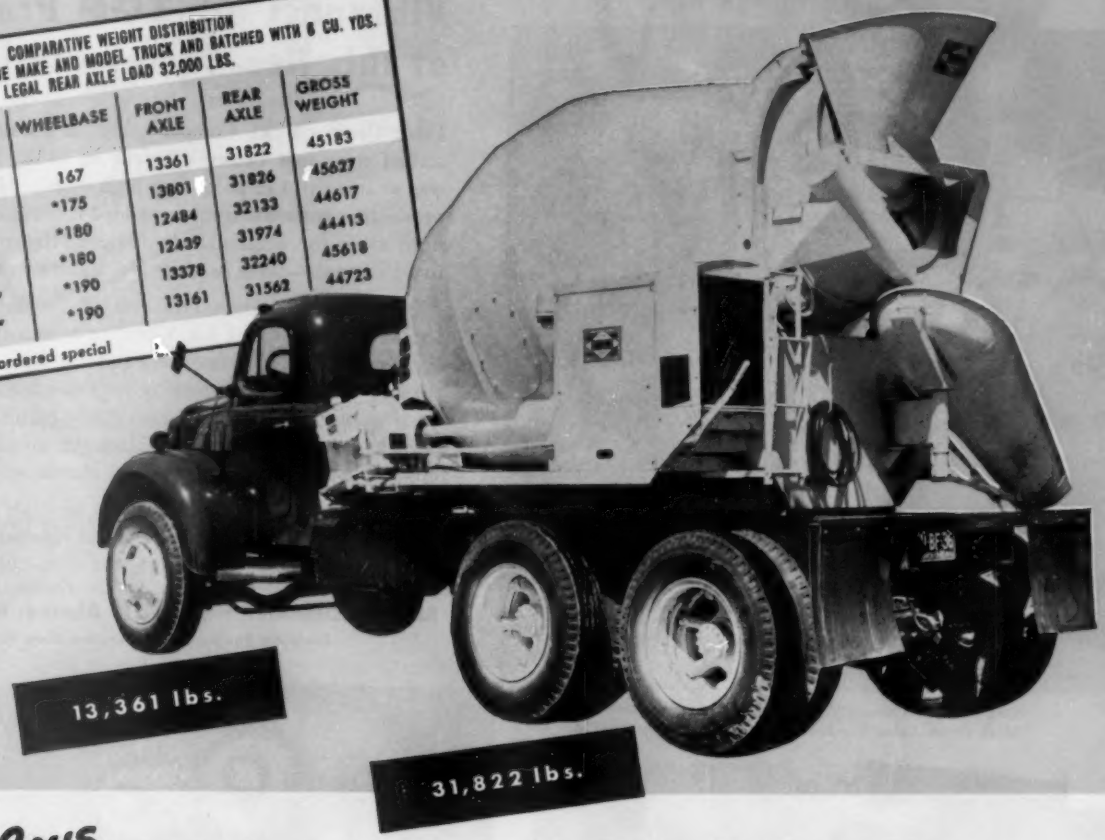
THE TECHNOLOGY OF CEMENT AND CONCRETE. By Robert F. Blanks and Henry L. Kennedy. New 1955. 422 pages. 155 illustrations, charts, tables and graphs. In logical order and clear, simple language it covers the known facts about the materials used in concrete and their concrete-making qualities. Main emphasis is on portland cement and aggregates, with a special effort to include data on which information is not readily available elsewhere. *PRICE* $11.00

Compare BLAW-KNOX TRUKMIXERS *with ordinary truck mixers for better weight distribution on* SHORTER WHEELBASE TRUCKS

COMPARATIVE WEIGHT DISTRIBUTION
ALL MIXERS ON SAME MAKE AND MODEL TRUCK AND BATCHED WITH 6 CU. YDS.
LEGAL REAR AXLE LOAD 32,000 LBS.

LOAD ON THE ROAD	WHEELBASE	FRONT AXLE	REAR AXLE	GROSS WEIGHT
BLAW-KNOX	167	13361	31822	45183
MIXER "A"	*175	13801	31826	45627
MIXER "B"	*180	12484	32133	44617
MIXER "C"	*180	12439	31974	44413
MIXER "D"	*190	13378	32240	45618
MIXER "E"	*190	13161	31562	44723

*Must be ordered special



Hi-Boys mount on a more maneuverable, shorter wheelbase truck

WHEN YOU STUDY the table above you can see why Blaw-Knox Hi-Boy TRUKMIXERS can be mounted on shorter wheelbase trucks. Mounting the motor at the rear and the transmission at the end of the combination pedestal water tank, permits center of weight to be moved 20" forward and shortens the overall length. This gives better weight distribution with more weight on front axle so you can carry bigger *legal* payload.

Another Hi-Boy feature that assures better weight distribution and most efficient mixing is the larger diameter drum that mixes even zero slump concrete quickly and keeps the batch weight at the front of the mixer. Pedestal and flush water tanks are also combined to reduce weight by approximately half a ton and lower the center of gravity of the unit. There are dozens of other practical, profitable features in these units you will want to investigate. Call your Blaw-Knox distributor today.

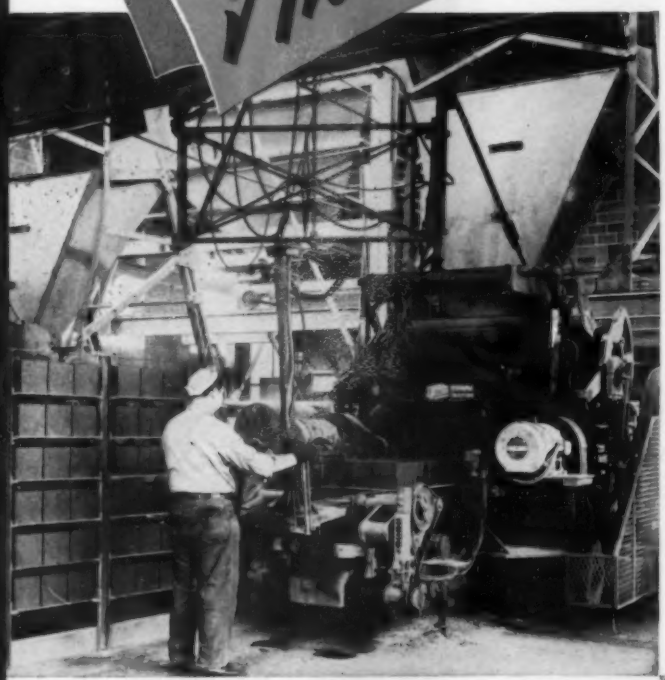
50th Anniversary BLAW-KNOX 1906-1956

BLAW-KNOX COMPANY

CONSTRUCTION EQUIPMENT DIVISION
33 CHARLESTON AVENUE Mattoon, Illinois

This is the 133rd of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

Another BESSER BOOSTER



One of the five Besser Vibrapacs installed in the two Faber block plants. Latest Vibrapac put in operation, April, 1956.

Vibrapacs are TOP Producers at this New Jersey Block Plant

Faber Cement Block Company, Inc., at Paramus, N. J. installed their first Besser Vibrapac in 1942. This machine was so successful in producing high quality block on a fast production basis, the company added more Vibrapacs as the need arose for additional equipment. Today they operate five Vibrapacs—three in plant No. 1 and two in plant No. 2.

Albert Faber, Secretary-Treasurer of the Faber Company speaks very highly of his Vibrapac machines. *"We think they are the best."* This candid opinion is backed by more than 35 years of block making experience. Currently, production is at a peak at the two Faber plants. Block in all types and sizes, including split block, are supplied for homes, business establishments, industrial plants, schools, etc.

If you want to step up production of high quality block, look into Vibrapacs. Phone the Besser representative nearest you, or write:

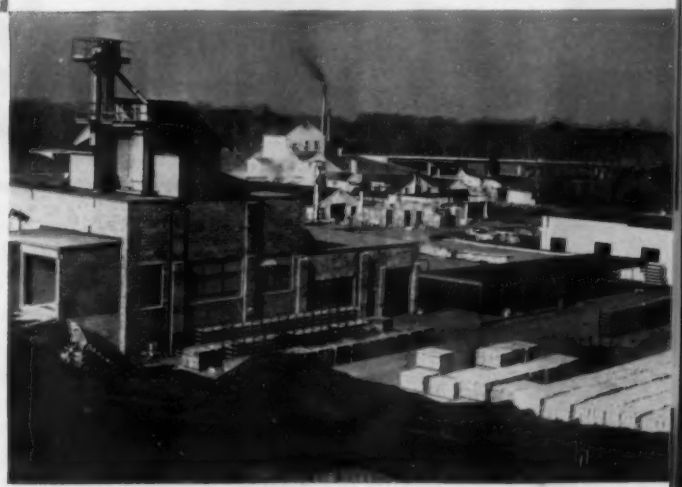
BESSER COMPANY • Box 127, Alpena, Mich., U.S.A.

Complete Equipment for Concrete Block Plants

Local bowling alleys recently completed using split block for both exterior and interior walls. Combines beauty with permanence, at low cost.

SPLIT BLOCK

—the split block with quarried stone appearance is proving popular in the New Jersey area. Made from block produced on a Besser Vibrapac and split on a Bes-Stone Block Splitter.



Exterior view at Faber Cement Block Company, Paramus, N. J. The original plant is in the background. New plant, in foreground, was built in 1955.

NATIONAL HOUSING CENTER
WASHINGTON, D. C.
(Sponsored by NAHB)

Besser Company maintains a permanent exihibit at the Washington Housing Center. Be sure to visit this fine display of concrete masonry.

BESSER VIBRAPAC

first **in concrete block machines**

A 8863-1PBC

save

$40 per month

on gas and oil alone

Careful records by operators for a full year of tough schedules prove that the Smith Integral* saves more than $40 per month on gas and oil alone compared to separate engine drives.

It's the "engine loafing" that hikes maintenance costs

With a separate engine drive, high maintenance results from *loafing* the truck mixer engine—not from working it to death.

The Integral NEVER LOAFS

In the Integral, the truck engine always operates at efficient speeds. Carbon buildup is eliminated.

There is plenty of horsepower from the truck engine alone because *the only time extra power is needed, the truck is standing still.* This is for charging and discharging. Full horsepower from the truck engine is thus available for both operations. Once the drum starts revolving, only about 5 to 10% HP is taken from the engine.

If you don't need two engines, why pay for two? *One* is actually more efficient.

Write for full details about the cost-saving Integral.

Since 1900, the pioneer designer and foremost manufacturer of the world's finest mixers.

SMITH

integral*

ONE FRAME FOR BOTH TRUCK AND MIXER — ONE ENGINE FOR BOTH

*TRADE MARK

THE T. L. SMITH COMPANY, Milwaukee 45, Wisconsin; Lufkin, Texas

Affiliated with Essick Manufacturing Company, Los Angeles, Calif.

Ad No. A8784-1P

NOW YOU GET THE BEST FOR FAR LESS!

Forrer's XL-100

Powdered

Concrete Plasticizer!

Costs only ¼¢ per bag of cement

Cut your plasticizer costs to the bone with *XL-100* dry powder. It weighs less — goes farther and does a better job. New process brings you a plasticizer that acts faster, takes 1/3 the amount (by weight) and does a superior job. Concrete blocks are shades whiter, denser and outside surfaces have smoother texture. Increase contractor, builder satisfaction — deliver a better block for less than 1/4¢ per bag of cement. Investigate *Forrer's XL-100* today!

WILL NOT GUM UP!

Guaranteed

"FREE-FLOWING"

COMPARE!
SEE THE AMAZING DIFFERENCE!

More space — less weight means more for your money. You save up to triple your freight costs, and you use much less material, by weight, per batch.

***Forrer's XL-100* is a dry hydrated powder with wetting and dispersing agents. It's easy to use and economical too — costs but ¼¢ per bag. Free sample on request — Send Coupon Today!**

ONLY F
OF
ALL THE

- Gives y ture, s
- Greate time —
- Reduce blocks

Divisi
SPRAY
2225 I
Milwa

MAIL THIS VALUABLE FREE KLEEN-MIX CARD TODAY! SAVE $6.75

$ $ $ $

NOTE: You must send in this card to receive FREE KLEEN-MIX!

Our 30th Anniversary Special!
FREE OFFER — 5 Gal. Forrer's KLEEN-MIX

Limit One to a customer . . . Regular **$6.75**

Buy a drum of Forrer's XL-100 Plasticizer and get 5 gallons of KLEEN-MIX at no extra cost. Offer good only with card attached to this ad.

Forrer's Kleen-Mix cuts clean-up time up to 50% when sprayed or brushed into mixes. Kleen-Mix forms a transparent, non-hardening film on exposed metal parts to prevent concrete from bonding to the metal. No chisels or air hammers needed to loosen concrete.

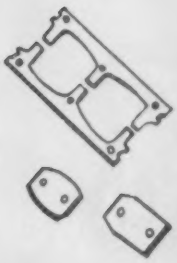
MAIL ATTACHED FREE
KLEEN-MIX CARD *TODAY!*
Regular $6.75 Value

NOTE! You must send in this card to receive **FREE**

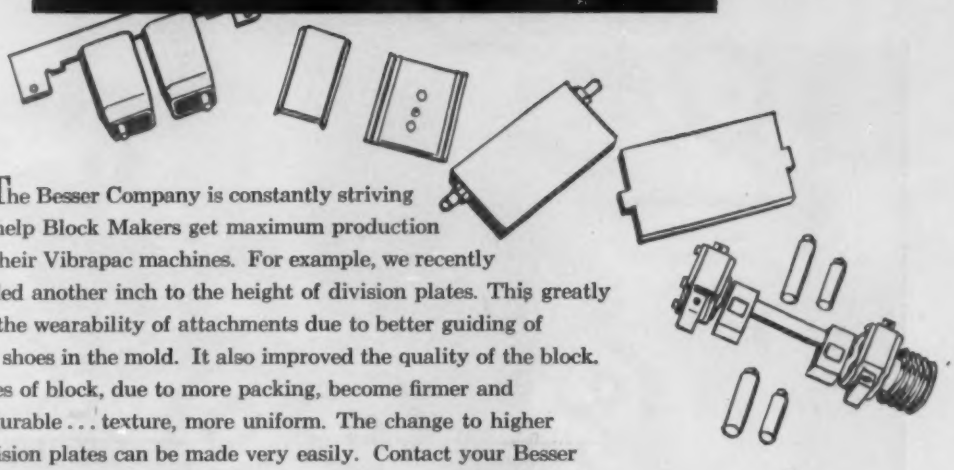
KLEEN-MIX

New Higher Division Plates
Step Up Quality and Production!

VIBRAPACS
Run Smoother with Genuine
BESSER PARTS

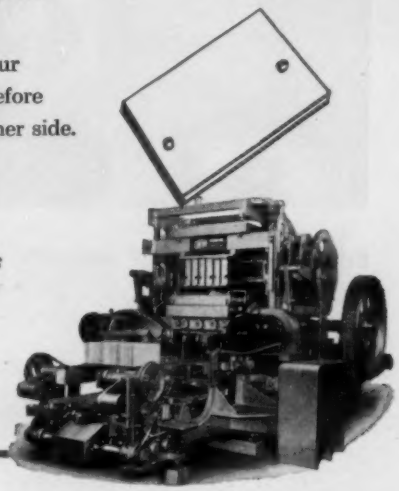


PART NUMBERS
Outside Division Plates
No. 55312
Inside Division Plates
No. 58980
Cut-off Bar
No. 57768
Outside Cut-off Shoes
No. 57769
Inside Cut-off Shoes
No. 57770



The Besser Company is constantly striving to help Block Makers get maximum production from their Vibrapac machines. For example, we recently added another inch to the height of division plates. This greatly increased the wearability of attachments due to better guiding of stripper shoes in the mold. It also improved the quality of the block. Edges of block, due to more packing, become firmer and more durable . . . texture, more uniform. The change to higher division plates can be made very easily. Contact your Besser representative for details.

Tip to Block Makers — You can get double duty from your cut-off shoes if you change from one edge to the other. Before wearing ⅛" on one side, turn cut-off shoe over and use the other side.



BESSER Company
BOX 127 ALPENA, MICHIGAN, U.S.A.
Complete Equipment for Concrete Block Plants

BESSER Genuine PARTS

GENUINE VIBRAPAC PARTS ARE MADE ONLY BY BESSER

A 8876-1PC

Every feature makes for payload

SHORTEST CENTER OF GRAVITY

Example: Jaeger 5½ yd. with rated load has c/g of 69", versus up to 77" in others.

3-SPEED TRANSMISSION

1½ to 16 drum rpm @ 800 to 2000 engine rpm.

LIGHT WEIGHT

Ruggedly built Jaeger 5½ yd. model weighs only 7200 lbs. Average of 10 other makes, including "lightweights", 7129 lbs.

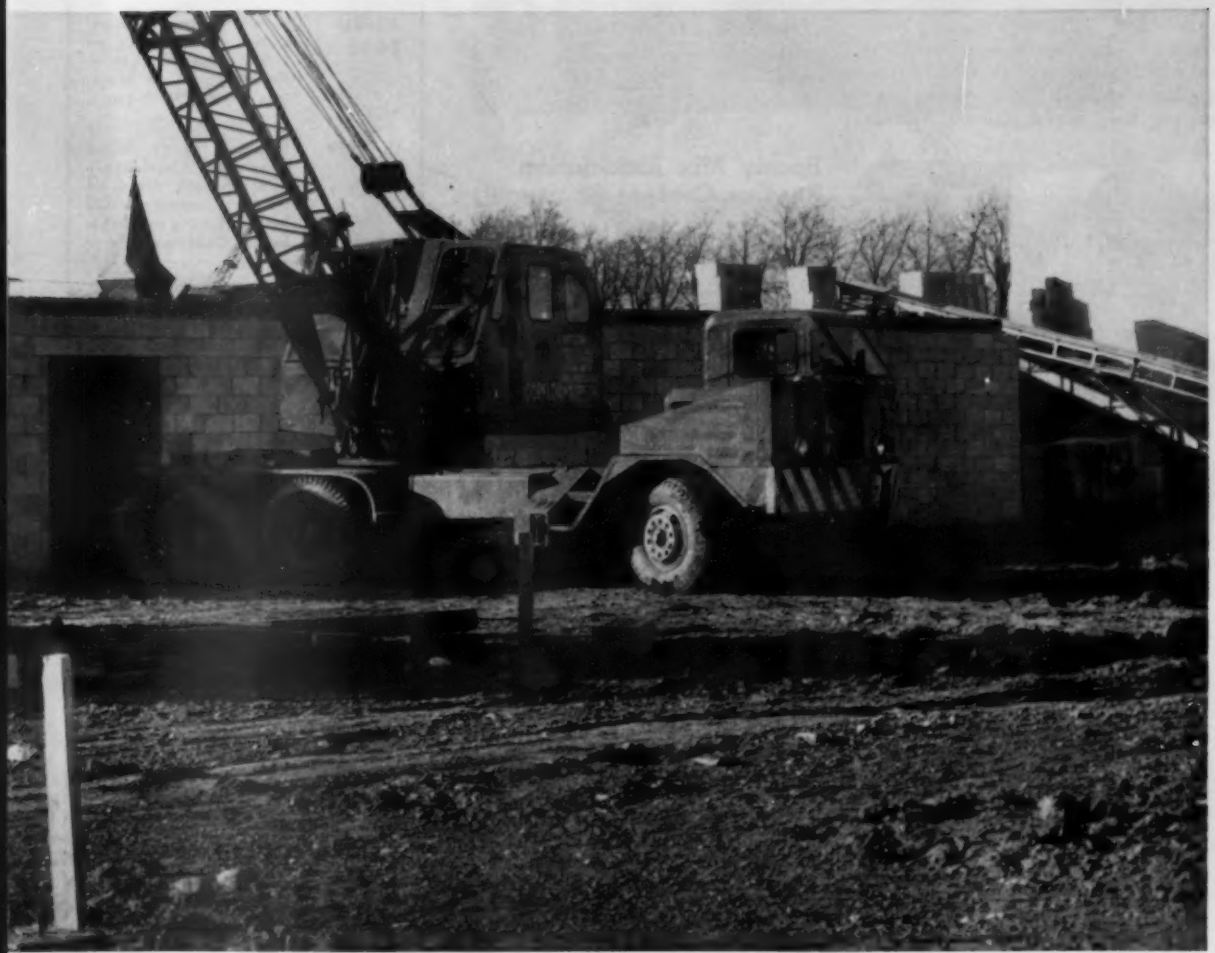
FASTEST CHARGING AND DISCHARGING

16 rpm drum, enlarged loader throat and 25% larger discharge blades set new rates of speed.

MORE RUGGED THAN EVER

Examples: Trunnion and final reduction mounted in same unit; one-piece drum track; largest diameter drum rollers and drive sprocket.

in the great new Jaeger Model "D"



COMPLETE OPTIONAL CHOICES

Separate engine or cab-controlled truck engine drive, with type of transmission, loading, water measuring and injection you prefer.

YOUR JAEGER DISTRIBUTOR

knows your local conditions and how Jaeger mixers can be equipped for most efficient operation with your set-up. Check with him or write us for complete information.

THE JAEGER MACHINE COMPANY

522 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • PUMPS
CONCRETE MIXERS • PAVING MACHINES

50th year JAEGER

INDUSTRY NEWS

NCMA Announces Additions to Staff

Two appointments to the staff of the National Concrete Masonry Association at Chicago have been announced by E. W. Dienhart, executive secretary. William A. Loewer joins the engineering department as an office and field engineer. Working under R. E. Copeland, director of engineering, his duties will include writing technical literature and conducting field investigations. William J. Blaha joins the staff as publicity assistant to W. P. Markert, director of promotion. In his new capacity, Blaha will prepare publicity material for both internal and external publications.

W. A. Loewer

W. J. Blaha

Mr. Loewer previously was with the George H. Fuller Company of Chicago and Fred Harbers' Son of Peoria. He received his BSCE degree from the University of Michigan.

Mr. Blaha comes to NCMA from United Air Lines. Prior to that, he was associated with the International Harvester Company and the Davenport (Iowa) Daily Times. He is a graduate of the University of Missouri.

■

Ready Mix Association Studies Cement Shortage

The National Ready Mixed Concrete Association is again requesting member companies to supply information that will make possible a realistic appraisal of the extent to which the industry may be handicapped by cement shortages during the remaining months of 1956.

Producers have been asked to supply information on such matters as the extent and causes of area shortages, as well as on the anticipated volume of out-of-area and foreign cement purchases. A report on the findings will be forthcoming at an early date.

New York Masonry Assn.

● Officers and directors of the New York State Concrete Masonry Association, Inc. are shown here at the recent semi-annual meeting in Syracuse, New York. Seated, left to right, are William C. Homer, vice-president; Henry C. Quaritius, Jr., president; and Lawrence Dagostino, treasurer. Standing, left to right, are Lee Taylor, Harvey Black, John D. Daly, and Salvatore Picone, all directors; and Robert Abbey, executive secretary.

Calendar . . .

JULY 30-AUG. 1	National Cinder Concrete Products Association—Summer Meeting—Chalfonte-Haddon Hall—Atlantic City, New Jersey.
AUGUST 13-16	National Ready Mixed Concrete Association—Committee Week—Jefferson Hotel—St. Louis, Missouri.
AUGUST 24-26	Concrete Products Association of Michigan — Late Summer Meeting — Grand Hotel — Mackinac Island, Michigan.
OCTOBER 1-3	National Ready Mixed Concrete Association—Semi Annual Board of Directors' Meeting—Del Monte Lodge—Pebble Beach, California.
OCTOBER 20	New Jersey State Concrete Products Association—Annual Dinner—Swiss Chalet—Rochelle Park, New Jersey.
OCTOBER 22-26	National Safety Council—44th National Safety Congress and Exposition—Conrad Hilton, Congress, Morrison, and La Salle Hotels—Chicago, Illinois.
NOVEMBER 12-19	American Concrete Pressure Pipe Association — 8th Annual Convention and Meeting — Castle Harbour Hotel — Tucker's Town, Bermuda.
	1957
JAN. 28-FEB. 2	American Road Builders' Association—55th Annual Convention—International Amphitheater — Chicago, Illinois.
FEBRUARY 11-14	National Ready Mixed Concrete Association—27th Annual Meeting—Statler Hotel—Los Angeles, California.
FEBRUARY 25-28	Concrete Industries Exposition—10th Biennial Exposition—Kiel Auditorium—St. Louis, Missouri.
FEBRUARY 25-28	National Concrete Masonry Association—37th Annual Convention—Kiel Auditorium—St. Louis, Missouri.

Pipe Takes To Air

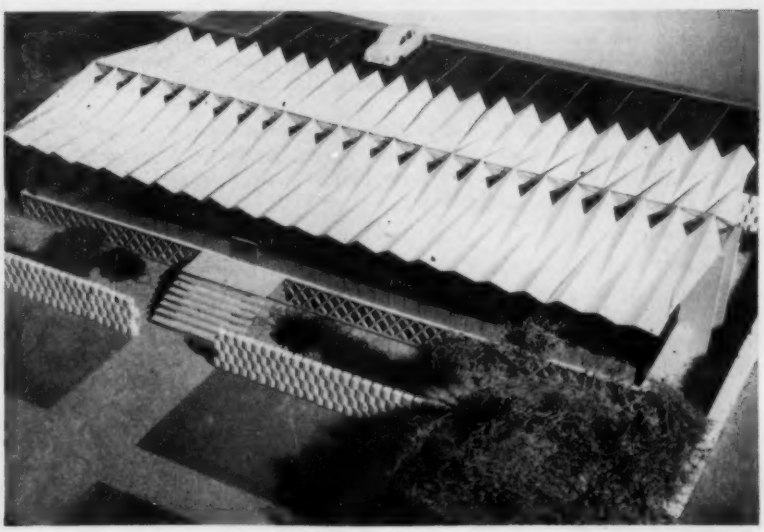
● A helicopter taking off over rugged country in Tasmania with a 653-pound concrete pipe slung beneath it. As the pipe was too large to be rolled under the machine for loading, the helicopter hovered several feet above ground while a cable was strung through the pipe and clipped to lugs on the bottom of the fuselage.

Job Site Sign

● This attention-getting job site sign is being offered by the National Concrete Masonry Association to its members. Strikingly colored in red, white and blue, it is 3 feet long and nearly 2 feet high. The association suggests the use of such signs on all concrete masonry construction jobs.

ACI Home

● The new American Concrete Institute building, designed by Minoru Yamasaki, will feature a folded-plate reinforced roof system. The roof system, cantilevered front and rear from concrete interior corridor walls, projects over the exterior walls of precast concrete panels and glass. The structure will employ concrete in several forms and serve as headquarters for the society's increasing technical activities.



Everybody's Business

BAROMETERS

- Businessmen can be wholeheartedly optimistic, or deeply gloomy, depending entirely on which of two rather completely opposed sets of portents they choose to take seriously.
- On the gloomy side just now are such factors as the auto slump (which at the moment, however, is showing some signs of having run its course), sagging farm machinery sales, rising consumer debt, manufacturers' inventories at the highest level in history, and a tendency for unfilled order backlogs to shrink in a number of lines.
- These minus signs, however, are still more than balanced by such bullish indications as the continued high level of construction activity, increases in the output of petroleum, electric power and many chemicals, and a strong demand for goods at the retail level, as well as for such capital goods as construction equipment and machine tools.
- There is concern in some quarters over the increase in business failures during the first four months of 1956. Dunn & Bradstreet reports indicate there were 4,227 failures compared with 3,757 for the same period in 1955. The impact of this statistic is reduced, however, by the fact that far more new business ventures were launched during the 1956 period — an indication that a fair number of people just simply don't go along with the gloom-and-doom school of thought.
- Anyhow, the record should show that this was the year that a Chicago candy manufacturer chose to introduce 3½-pound chocolate elephants and donkeys, priced at $10 each. It that isn't high optimism, it'll do for a substitute.

CONSTRUCTION

- Boom level construction activity continues to be the mainstay of the American economy, and for the moment, at least, there are no indications of a serious slump in this important category of business activity. All signs seem to indicate that the building industry's outlook is bright for at least the next five or six years, while a huge backlog of such public construction projects as highways, schools and institutions is gradually whittled down.
- The construction outlook has received another shot in the arm from a government survey which shows that business spending for new plant and equipment is scheduled to rise by an annual rate of $2 billion in the third quarter of this year.
- Federal Housing Chief Cole has disclosed that the government has some steps under consideration to help home building reach 1,300,000 starts this year. The likeliest possibility: Reduction of the minimum down payments required on mortgages insured by the Federal Housing Administration and the Veterans Adminstration. Both agencies upped their minimum down payment requirements by 2 per cent last July.
- A bill is being pushed to make everyone a veteran to the extent of offering all home buyers the liberal mortgage insurance now available only to ex-G.I.'s. Both builders and veterans' groups are understood to support the idea.

LABOR

- The Supreme Court ruled recently that Federal labor laws do not prohibit states from banning mass picketing, use of force or threats of violence by strikers. The decision was handed down on an appeal from a Wisconsin supreme court ruling in connection with the Kohler strike. The majority of the justices held that the dominant interest of the state in preventing violence and property damage cannot be questioned.
- A recent study of industrial mental health has come up with these startling statistics: 2 million problem drinkers lose from 22 to 25 work days a year, cost industry about $500 million; 85 per cent of industrial medical service goes to 30 per cent of workers.

Safety Council Publishes Manual for Supervisors

A "Supervisors Safety Manual" has been published by the National Safety Council. Written by staff engineers of the Council's industrial department and carefully reviewed by safety experts from business, industry and government, the manual provides foremen with a comprehensive guide to all phases of industrial safety.

The manual can be used as a text for group training or self study or as a reference work to solve most of the general safety problems encountered by the foreman in his work day. It provides him with a basic knowledge of accident prevention techniques and human relations know-how.

The manual includes material on the human side of safety, maintaining interest in accident prevention, first aid, protective equipment, housekeeping, materials handling, machine guarding, portable power tools and fire prevention.

The "Supervisors Safety Manual" is illustrated with numerous photographs and drawings in its 354 pages. It is available to Council members for $3.25. Non-member prices are double. For a brochure giving a complete list of the contents and quantity prices, write the National Safety Council, 425 N. Michigan Avenue, Chicago 11, Illinois.

■

Sees Bright Future for Faced Concrete Block

Speaking at a recent meeting of the Society of Construction Superintendents in New York City, George Kogel, president of the Concrete Corporation, Long Island City, voiced the opinion that new developments in faced concrete block may provide masonry's answer to the challenge of prefabricated metal panels in low-cost building construction.

New types of faced block now becoming available to builders are bound to widen the market for the product, Mr. Kogel said. He made specific reference to a cold glazing process in which water of crystallization and cement particles form a surface of glazed cement, with the result that a porcelain-like coating of colored cement becomes an integral part of the block.

Cement Assn. Announces Promotion Staff Changes

The Portland Cement Association has announced organization changes in the General Headquarters staff of its Promotion Division, headed by James D. Piper, vice president.

The changes, which became effective June 1, were made to broaden responsibility for the organization's expanded promotion program. The former position of director of promotion has been divided by the creation of the positions of director of promotion planning and engineering services, and director of educational services.

The position of director of educational services will be filled by Charles W. Reene, 33, formerly advertising and promotion manager, Hough Manufacturing Corporation, Janesville, Wisconsin. He will supervise the Association's activities in the fields of advertising, public relations, publications and educational films, and will be returning to the Association where he served from 1949 to 1953 as assistant to the advertising manager.

Leo H. Corning has been given the new title director of promotion planning and engineering services, in which position he will be able to devote full time to the expanded requirements of technical promotion. He joined the association's staff in 1929, and had been director of promotion since 1952.

Announced at the same time was the appointment of George H. Paris as assistant to the vice president for promotion. Mr. Paris joined the Portland Cement Association in 1946 and had served as assistant director of promotion since 1953.

Small Businesses Doing All Right, Report Shows

Contrary to some widely-publicized statements, small business in this country is doing quite well. The statement is based on the Federal Trade Commission-Securities and Exchange Commission quarterly report for manufacturing corporations.

The report shows that in the last year corporations with assets of less than $250,000 have shown the greatest increase in profit margins of all classes. Profit margins for this group were 57.1 per cent higher than 1954 levels. This compares with an average increase of 20 per cent for manufacturing corporations of all sizes. Also, profits per dollar of sales for corporations from $250,000 to $1,000,000 in assets have risen faster than the average for all corporations (though not as fast as the profits of the smallest group).

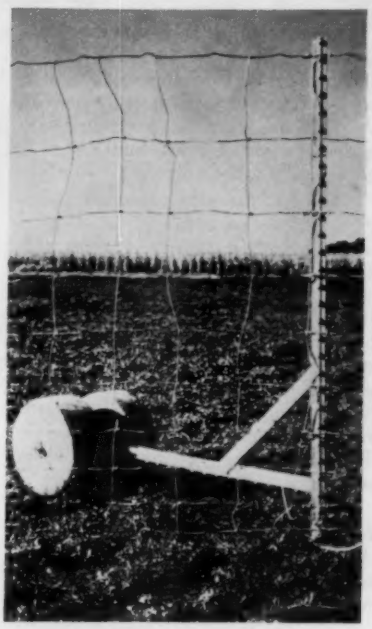
It is often said that the increasing number of business failures shows that small business is not sharing in the present prosperity. But, while it is true that business failures have risen since 1950, the number of new incorporations in the same period, shows a greater increase — 36 per cent against 24 per cent.

ACI Publishes Five-Year Index

The American Concrete Institute has published an index to the *Journal of The American Concrete Institute*, covering September 1949 through June 1954 — ACI Proceedings Vol. 46 to 50 (*Journal* Vol. 21 to 25). The Supplemental 5-Year Index indexes *Journal* contributions — papers, reports, and discussions — in three categories: title, author, and subject. A brief synopsis is given for each paper. The index supplements the ACI 20-Year Index, published in 1950, which covered *Journal* issues November 1929 through June 1949 (ACI Proceedings Vol. 26 to 45).

Rolling Fence

● Cast concrete wheels made possible a rolling fence on the Wesley Miller turkey farm in Nobles County, Minnesota. Mr. Miller welded wagon hoops, tongues, axles, and braces to his steel fence posts. Using buckets for forms, he poured his own concrete wheels. The concrete also provides the weight that gives the fence stability without a single post being set in the ground. When moving his turkey fence to new ground, he hooks two tractors to the front section of the fence. Driving carefully, to keep the fence taut, the entire assembly is rolled to the desired location.



Laboratory Expansion

New PCA facilities will provide for increased research on concrete structures and fire resistance of concrete

G. Donald Kennedy, president of the Portland Cement Association has announced that the Association will construct two new laboratory buildings at its Research and Development Laboratories in Skokie, Illinois. Estimated to cost $1.8 million with their equipment, the buildings will provide for the Association's expanded research program on concrete structures and the fire resistance of concrete. Completion is scheduled for 1957.

The Structural Development Laboratory will be 56 by 176 feet in plan, and the Fire Research Center 56 by 220 feet, with a two-story 24 by 132-foot wing on one side. The main portion of each building will be a single large room 40 feet high.

Identical precast structural members will be used for the main portions of both buildings. Frames will be of conventional reinforced concrete, but the beams will utilize high-strength steel reinforcing bars. The beams were designed by the ultimate strength method using 60,000 psi for ultimate steel stress. Wall panels will be of tilt-up construction with decorative designs cast in the concrete. The roofs will be of precast concrete units.

Dr. A. Allan Bates, vice president for research and development of the Association, stated that the buildings have been made necessary by significant advances in concrete technology and structural design. American engineers are making great strides in use of types of concrete construction relatively new to this country, Dr. Bates pointed out. The new laboratories will be devoted to supplying through the Association's field engineering organization to designers and builders the research and development information necessary to continued progress.

The Fire Research Center will be organized under the Research Department, of which Hubert Woods is director. The Structural Development Laboratory will be under the Development Department, Douglas McHenry, director.

Dr. Bates described the Structural Development Laboratory as in effect "one giant testing machine." Conventional testing machines will not be used in the building. Instead, testing equipment will be constructed as required from large elements of structural steel shapes, and hydraulic jacks. Holes on 3-foot centers through the reinforced concrete floor will allow testing equipment to be bolted down.

The required strength and rigidity of the testing floor will be developed through a type of construction involving box girder action in the longitudinal direction and truss action in the transverse direction.

The Fire Research Center will ultimately contain six furnaces large enough to handle tests on full-scale beams, columns, wall and floor slabs. The laboratories will be the largest of their kind devoted to research on concrete. Fire laboratories are maintained at the National Bureau of Standards in Washington and the National Board of Fire Underwriters which sponsors Underwriters Laboratories, Inc., in Chicago, but these are devoted almost entirely to establishment of fire resistance ratings. In addition the PCA Fire Research Center will be used for research aimed at improving the fire resistance of concrete and concrete building elements.

Both buildings will have overhead cranes that will travel the full length of the main testing areas. An unusual feature of the Fire Research Center will be a large movable partition which will separate the air conditioned casting and storage area from the furnace room. It will be so constructed that it can be opened to allow passage of the crane when specimens are to be moved from the storage area to the furnaces.

Initial emphasis in the Fire Research Center will be placed on determining the fire resistance of prestressed concrete, since more information on it is needed for current applications. Other factors to be included in early studies are strength and type of concrete, method of curing, thickness and shape of section, type and amount of reinforcement, bonding of prestressed reinforcement, thickness of cover and surface preparation.

In the new Structural Development Laboratory, one of the first projects that will be undertaken is a study of various types of connections used with precast structural members. Another high-priority project will probably be extensive study of full-scale concrete floor slabs.

In announcing plans for the two new buildings, Mr. Kennedy stated that with these additions to its present facilities, the Association will have by far the largest and best equipped cement and concrete research and development laboratories in the world.

■

300 Prestressers Meet At 2nd PCI Convention

Some 300 producers and users of prestressed concrete registered for the second annual convention of the Prestressed Concrete Institute at Hollywood, Florida, May 16 to 18. In addition to two days of concerted attention to technical papers and panel discussions, details of which are reported elsewhere in this issue, an entire day was devoted to field trips to the prestressing plants of Lewis Manufacturing Company in Miami, and R. H. Wright & Son in Pompano Beach. The field parties also visited one overpass of the new Florida turnpike and inspected several large buildings erected of prestressed concrete.

J. A. Gray

A new slate of officers and directors was elected which draws on members from a wide area. J. Ashton Gray, president of Stresscrete, Inc. of Leesburg, Florida, is the new PCI president. Ben C. Gerwick, Jr., of San Francisco, California, was elected vice president. Secretary-treasurer is Douglas Cone of Florida Prestressed Concrete Company, Inc., of Tampa, Florida. The directors are Pete Verna of Concrete Materials, Inc., Charlotte, North Carolina; Harold A. Price of Basalt Rock Company, Inc., Napa, California; George Ford of R. H. Wright & Son, Fort Lauderdale, Florida; Arthur A. Bruce of Schell Industries, Ltd., Woodstock, Ontario; Carroll Strohm of Nashville Breeko Block Company, Nashville, Tennessee; Charles C. Zollman of Springfield, Pennsylvania; Werner Rosch of Lewis Manufacturing Company, Inc., Miami; and Dr. T. Y. Lin, University of California, Berkeley, California.

Pipe Association Names Assistant to Peckworth

J. W. Weber

John W. Weber has been appointed as an assistant to Howard F. Peckworth, managing director of the American Concrete Pipe Association, Chicago, Illinois. He was formerly with the Chicago Rock Island and Pacific Railroad Company as office engineer in the bridge department. Mr. Weber received his B.S. in Civil Engineering at Illinois Institute of Technology in 1948.

■

Carpentry Gets Top Share Of Home Building Dollar

A survey based on recently constructed one-story brick homes indicates that carpentry, lumber, and millwork take top share of the home building dollar. They account for 30 per cent of every dollar of cost.

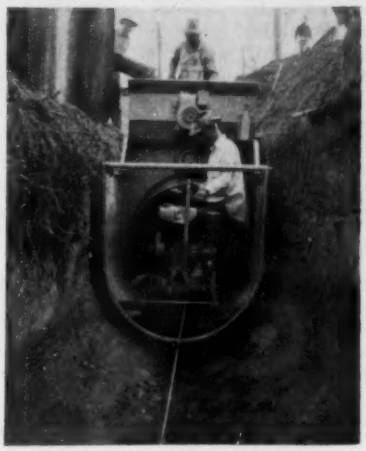
Masonry work comes next, with a take of 12 cents, and concrete work runs a close third with a take of 11 cents. Thus the three top items add up to more than half of each construction dollar. The survey showed that the proportionate cost of each type of work is about the same, whether a home costs $15,000 or $30,000.

Expanded Shale Group Elects Officers

● New officers of the Expanded Shale, Clay and Slate Institute are Ben Park, treasurer, Allan Taylor, secretary, Alex McVoy, president, and Otto C. Frei, vice president.

No-Joint Pipe

● A mobile manufacturing plant has been developed that pulls itself through the earth, leaving in its wake a continuous, jointless-seamless concrete pipe. According to the developer, the No-Joint Concrete Pipe Company of Yuba City, California, over 300,000 feet of pipe have already been laid by this revolutionary process. The machine is pulled along in a prepared trench by means of a gasoline-powered winch anchored to a dead man. The hopper of the machine is supplied with concrete by a transit-mix truck. The two illustrations show both fore and aft views of the machine.



Recognition

● A. W. G. Clark (left) receives from C. A. Bluedorn a plaque in recognition of two years of meritorious service as president of the American Concrete Pipe Association. Mr. Bluedorn was elected president of the group at the recent convention in Colorado Springs.

NOT IN THE SPECS

Hassles In Concrete

It will come as no news to our readers that the world we live in is a contentious affair, but they may be somewhat surprised to learn the extent to which concrete in one form or another becomes involved in the more or less eternal rowing that goes on among our species. The following examples are only a few among the many that have been sent to us in recent months by newspaper clipping services.

Our first exhibit involves a commercial testing laboratory located in Florida which has been under fire for allegedly falsifying and altering laboratory test reports on concrete. In explaining some of the irregularities with which he had been charged, the owner of the organization had this to say: "I don't know batching from mixing cake." The only thing that makes this item really news worthy, so far as we can see, is the unexpected honesty underlying the testimony. A good many of the people who engage in this line of endeavor seem to be no better informed than the Florida gentleman, but we doubt if very many of them could be persuaded to admit to their ignorance with quite the same candor.

Our second exhibit involves a property owner down in Houston, Texas, who has been engaged in a feud with city authorities concerning the status of the street in front of his house. Under the impression that the thoroughfare was private property, the man erected an earthen barricade to prevent trespassing. When city laborers readily shoved aside this barrier, the irate obstructionist erected another barricade, this time of reinforced concrete in which he incorporated high-early-strength cement. Now it would appear the guy has a new quarrel with the city fathers; while the courts are trying to decide the issue on its merits, the scene of the feud is reverberating to the din of air hammers which are being used to remove the 4 tons of concrete.

A somewhat similar hassle has also been reported out in Los Angeles, where a group of high spirited fraternity lads incarcerated some forty coeds by walling up the door of their sorority house with an obstruction consisting of concrete block, monolithic concrete and steel reinforcing. Police who were summoned to rescue the imprisoned lassies report that the work had been done in a highly professional manner. When these lads get through horsing around with higher education, we hope they'll give some serious thought to the possibility of taking up masonry as a profession.

The town of Fayetteville, Arkansas, reports the biggest robbery in its history. Students at the University of Arkansas recently carted away an 800-pound shamrock made entirely of concrete. We don't know

that either of these last two items does anything to enhance the general reputation of college students, but certainly there is at least some indication that the younger generation is not entirely unwilling to expend energy now and then. On the whole, of course, it would seem to us that no one could be very much upset over the loss of a concrete shamrock, but then somebody must have wanted one badly enough to make it in the first place.

Our final exhibit comes from Hopkinsville, Kentucky, where night prowlers recently drove two large concrete truck mixers out of a supply company's garage, banged them into each other several times, and then parked them back inside. Perhaps this incident has its roots in the same strange instinct that causes male mountain goats to butt their heads into other male mountain goats during the rutting season.

● "Just pour the concrete — we'll tell you when to stop."

NEW DEVELOPMENTS IN PRESTRESSING

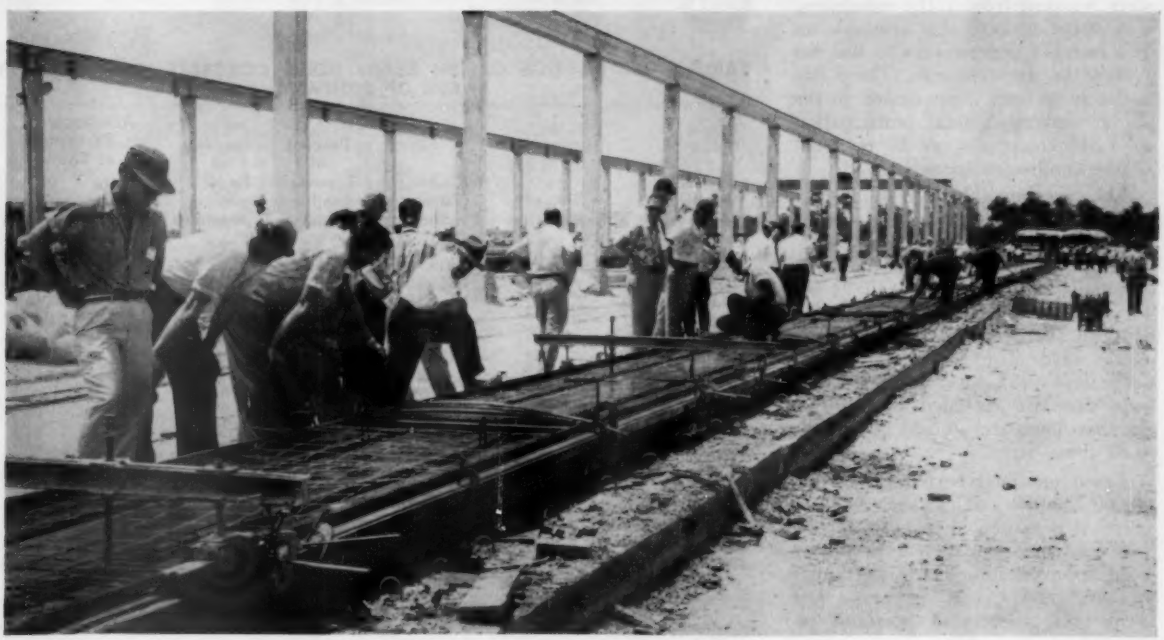
Several significant developments in the field of prestressing were underscored at the recent second annual convention of the Prestressed Concrete Institute at Hollywood, Florida. This brief summary of some of the ground covered was prepared for readers of Concrete by H. H. Edwards, one of the founders of the Institute. Mr. Edwards sent us the following notes in response to our suggestion that he cover the high spots of "what's new in prestressing" as evidenced by the convention discussions:

Dr. T. Y. Lin of the University of California at Berkeley discussed the importance of designing for ultimate load, camber under initial load, and the possibility of cracking under full load. The general tone of the panel discussions was that the use of tension under full live load is a matter of engineering judgment, and that in some cases, such as in bridge designs, zero tension must be adhered to. In certain building members a limited tension should be permitted, and in certain roof slabs, a very high tension can be used in some designs.

The discussions also brought out the fact that partial prestressing has a definite place in pretensioned roof slabs and is being widely used all over the country. However, it was pointed out that it is of the utmost importance to design for ultimate load in all cases where partial prestressing and high tension is used at full design load. This whole approach is considered quite a change from the thinking at the first annual convention of the Prestressed Concrete Institute held one year ago. At that time there was almost no discussion of ultimate design, partial prestressing, or the use of higher tensions in roof members.

William Dean, chief bridge designer for the State Road Department of Florida, presented an interesting talk on prestressed bridge construction. In the state of Florida there are now several large pretensioning plants which are geographically scattered throughout the entire state. All of these plants have set up facilities to produce the standardized bridge piling and bridge stringers developed by the State Road Department. As a result of the competitive bidding, standardization, and the large volume of bridge construction being let in Florida, prestressed concrete is now the dominant material.

(*Turn to page* 42)



● Members of the Prestressed Concrete Institute inspect a 430-foot double tee bed during their visit to the plant of R. H. Wright & Son.

Here, in both story and tabular form, are the results of the National Ready Mixed Concrete Association's comprehensive study of the characteristics and performance of more than 1300 producing firms. Because of the excellent response, this, more than any previous report of its kind, can accurately be labeled...

The Ready Mixed Concrete Industry

By KENNETH E. TOBIN, JR.
Associate Executive Secretary

The National Ready Mixed Concrete Association has completed its fifth annual survey of the production and value of ready-mixed concrete, a survey designed to fill the need for a reliable measurement of the contribution which the ready-mixed-concrete industry makes each year to the national economy.

Questionnaires were sent to the 2,308 ready-mixed-concrete companies in the United States of whom the association has record. Returns were received from 1,212 companies, and statistics were also available on 132 member companies who did not return the questionnaire. These statistics have been incorporated in the study, making a total participation of 1,344 companies, or 58 per cent of the companies surveyed.

The accompanying tables reflect the results of the survey of ready-mixed-concrete activity in 1955. Table 1 shows that the reporting companies produced 69,764,099 cubic yards, valued at $829,603,783, with an average value of $11.89 per cubic yard. The results of the association's 1952, 1953 and 1954 surveys are also included in Table 1 so that comparisons can be made with those years.

Based on the reported production of 69,764,099 cubic yards of concrete, it is estimated that the reporting ready-mixed concrete producers used approximately 112,000,000 tons of sand and coarse aggregate and 91,000,000 barrels of portland ce-

TABLE 1—READY MIXED CONCRETE IN 1952, 1953, 1954 and 1955

	1952	1953	1954	1955
Companies surveyed ...	1,625	1,791	1,975	2,308
Companies reporting ...	942	1,013	1,218	1,344
Production (cu. yds.) ...	49,169,443	53,404,513	61,914,534	69,764,099
Total value	$564,861,162	$636,482,350	$760,310,478	$829,603,783
Average value (per. cu. yd.)	$11.49	$11.92	$12.28	$11.89
Portland cement consumed (bbls.)	62,297,152	71,082,222	82,346,330	91,000,000
Sand and coarse aggregate consumed (tons) .	76,134,333	88,517,457	103,397,272	112,000,000
Average production	52,197	52,719	50,833	51,908
Median production	26,455	25,785	27,662	27,396

TABLE 2—DISTRIBUTION OF 1955 READY MIXED CONCRETE PRODUCTION BY SIZE OF COMPANY

1955 Production (cu. yds.)	No. of Companies	Cubic Yards Produced	Percent of Reported Production	Percent of Participating Companies	Accumulated Percents of Totals: Total Production	Accumulated Percents of Totals: Total Companies
0- 10,000	276	1,614,115	2.3	20.5	2.3	20.5
10,000- 20,000	283	3,936,753	5.6	21.0	7.9	41.5
20,000- 30,000	185	4,335,851	6.2	13.8	14.1	55.3
30,000- 40,000	125	4,121,156	5.9	9.3	20.0	64.6
40,000- 50,000	93	4,025,455	5.8	6.9	25.8	71.5
50,000- 60,000	75	3,988,083	5.7	5.6	31.5	77.1
60,000- 70,000	65	4,137,554	5.9	4.8	37.4	81.9
70,000- 80,000	44	3,180,657	4.6	3.3	42.0	85.2
80,000- 90,000	23	1,839,776	2.6	1.7	44.6	86.9
90,000-100,000	22	1,979,474	2.8	1.6	47.4	88.5
100,000-125,000	42	4,870,031	7.0	3.1	54.4	91.6
125,000-150,000	25	3,256,937	4.7	1.9	59.1	93.5
150,000-175,000	15	2,413,419	3.5	1.1	62.6	94.6
175,000-200,000	12	2,201,390	3.2	0.9	65.8	95.5
200,000-250,000	17	3,741,415	5.4	1.3	71.2	96.8
250,000-300,000	13	3,562,082	5.1	1.0	76.3	97.8
300,000-400,000	13	4,355,631	6.2	1.0	82.5	98.8
400,000-500,000	4	1,809,062	2.6	0.3	85.1	99.1
over-500,000	12	10,395,255	14.9	0.9	100.0	100.0
Totals	1,344	69,764,096	100.0	100.0	....	....

ment. The average production per company was 51,908 cubic yards; the median production was 27,396 cubic yards.

Table 2 is an analysis of the distribution of ready-mixed-concrete production in 1955 by size of company, based on returns from the 1,344 companies. The largest number of companies are in the 4 smaller brackets: 0 - 10,000 cubic yards, in which there are 276 companies, responsible for 2.3 per cent of the total production; 10,000 - 20,000 cubic yards, in which there are 283 companies, responsible for 5.6 per cent of the total production; 20,000 - 30,000 cubic yards, in which there are 185 companies, responsible for 6.2 per cent of the total production; and in the 30,000 - 40,000 cubic yard bracket, in which there are 125 companies, producing 5.9 per cent of the total production.

Twelve companies produced more than 500,000 cubic yards of concrete last year, accounting for 14.9 per cent of the total production. Less than 15 per cent of the total yardage was produced by the 55 per cent of the companies reporting in the smaller one-half (i.e. below the median). Conversely, the 8.4 per cent of companies in the larger brackets were responsible for more than 45 per

TABLE 3—EQUIPMENT AND PLANTS IN THE READY MIXED CONCRETE INDUSTRY

Type	1954			1955		
	No. of Companies Reporting	No. of Units Reported	Av. No. of Units Reported	No. of Companies Reporting	No. of Units Reported	Av. No. of Units Reported
Mixers or Agitators	1,129	14,609	12.9	1,212	16,460	13.6
Central Mixing Plants	430	552	1.3	467	635	1.4
Proportioning Plants	802	1,295	1.6	818	1,410	1.7
Non-agitating Units	1,129	2,081	1.8	1,212	2,054	1.7

Average number of mixers or agitators per plant reported above — 11.9 in 1954 and 12.8 in 1955.

TABLE 4—READY MIXED CONCRETE PRODUCTION, VALUE AND TYPE OF OPERATION IN 1955, BY STATES

State	No. of Companies	Production (cu. yds.)	Value ($)	No. of Central Mixing Plants	No. of Proportioning Plants	No. of Mixers or Agitators	No. of Non-Agitating Units
Ala.	18	750,769	$ 8,692,047	6	14	109	9
Ariz.	5	611,872	7,524,506	4	6	120	14
Ark.	11	301,949	3,131,585	4	10	99	9
Calif.	77	8,381,347	93,233,256	58	154	1,932	351
Col.	10	929,232	10,663,631	3	20	195	2
Conn.	26	980,827	12,101,197	8	22	255	50
Del.	3	143,998	1,860,182	2	3	36	8
D. C.	4	766,778	10,243,375	—	9	222	5
Fla.	45	2,769,187	38,085,349	17	46	650	22
Ga.	23	642,454	8,650,250	8	24	218	27
Idaho	4	92,006	1,135,033	—	5	31	14
Ill.	84	4,577,199	54,208,168	48	102	1,057	110
Ind.	54	1,978,343	23,860,942	37	44	591	44
Iowa	82	1,112,023	15,027,118	43	65	445	61
Kan.	17	761,600	8,585,175	9	14	179	13
Ky.	23	657,961	8,697,355	11	21	232	4
La.	12	948,488	12,599,383	6	27	204	32
Maine	6	189,441	2,359,333	4	6	65	26
Md.	12	1,319,337	17,223,475	15	12	261	5
Mass.	24	2,108,814	26,262,490	18	34	452	81
Mich.	40	3,724,135	48,622,637	17	49	830	65
Minn.	21	716,727	9,718,920	13	15	238	20
Miss.	8	236,387	2,818,921	4	8	76	22
Mo.	24	1,516,436	18,752,555	17	23	409	47
Mont.	12	196,005	2,807,800	11	5	79	26
Neb.	6	373,410	4,731,554	8	2	95	13
Nev.	3	199,860	2,886,939	4	4	46	5
N. H.	6	69,590	992,780	—	5	21	4
N. J.	16	1,233,592	16,165,048	5	33	259	14
N. M.	4	228,642	2,903,760	5	3	63	2
N. Y.	51	4,739,136	62,097,342	15	94	1,132	190
N. C.	25	688,991	9,310,698	7	24	231	17
Ohio	105	5,088,505	67,377,047	46	151	1,532	147
Okla.	12	328,218	3,936,051	—	15	111	3
Ore.	10	527,942	5,956,516	7	11	157	57
Pa.	92	3,867,221	51,093,980	44	96	1,273	158
R. I.	3	232,252	2,681,966	—	23	71	—
S. C.	10	133,879	1,744,910	2	8	56	4
S. D.	4	119,673	1,498,973	4	1	21	25
Tenn.	11	560,512	6,923,834	9	7	182	—
Texas	54	3,324,721	28,788,763	47	67	730	113
Utah	4	357,236	4,001,413	—	7	69	4
Vt.	3	38,520	510,260	1	2	23	30
Va.	26	1,186,976	15,491,700	4	44	316	20
Wash.	20	1,044,236	12,605,625	23	14	303	79
W. Va.	15	592,909	8,022,964	18	16	287	20
Wis.	52	1,501,875	18,744,547	18	42	416	82
Alaska	3	90,220	2,350,314	3	1	45	—
Other(1)	2	178,562	3,035,586	2	2	36	—
Total	1,212	63,120,993	$750,717,253	635	1,410	16,460	2,054

(1) Includes North Dakota and Hawaii; the single reports received from these areas did not permit separate listing without raising the possibility of disclosure of individual company figures.

cent of total ready-mixed-concrete production in 1955.

Table 3 contains data on amount of equipment and the number of plants by type in the ready-mixed-concrete industry. The statistics complied in this table include only the 1,212 companies actually returning the questionnaire and do not cover the additional 132 companies whose production statistics were otherwise available. The total number of truck mixers or agitators operated by the 1,212 companies was 16,460, representing an average of almost 14 units per company. Proportioning plants were reported by 818 companies, who have 1,410 such plants in operation, for an average of almost 2 plants per company. Central mixing plants were reported by 467 companies, who have 635 such plants in operation, or approximately 3 plants for every 2 companies.

The survey indicates that there are approximately 13 mixers or agitators for each producing plant. The participating companies reported 2,054 non-agitating units in operation, for an average of slightly less than 2 such units per company. Table 3 also includes similar statistics from the 1954 survey for purposes of comparison with the equipment in the industry that year.

Table 4 presents the production, value, and plant and equipment data on a state basis. Table 5 presents consumption data on a similar basis. This is the first time these tables have appeared in the association's report. They have been prepared in response to numerous requests for a breakdown of the national data.

It should be noted in connection with Tables 4 and 5, that in states and territories where less than 3 companies reported, the data are not separately presented. This procedure is necessary in order to carry out the pledge to reporting companies that no use will be made of the data which might make possible the disclosure of individual company figures.

TABLE 5—CONSUMPTION OF READY MIXED CONCRETE IN 1955, BY STATES

State	Total Production (cu. yds.)	Type of Consumer: Home-building	Federal Public Works	Non-Federal Public Works	Streets and Highways	Industrial Construction	Commercial Construction	Farm Construction	Other	Not Specified
Alabama	750.769	246.140	19.734	31.696	44.892	158.455	142.643	7.548	15.272	84.389
Arizona	611.872	389.437	920	3.680	20.577	35.874	111.971	43.433	5.980	—
Arkansas	301.949	127.014	7.514	13.951	39.759	26.000	63.695	9.588	14.428	—
California	8.381.347	3.415.737	337.595	667.864	720.515	838.432	1.027.161	78.421	119.208	1.176.414
Colorado	929.232	426.548	16.700	7.200	88.700	151.100	184.500	2.900	13.708	37.876
Connecticut	580.827	446.348	22.310	57.401	7.631	115.051	136.086	14.333	18.791	162.876
Delaware	143.998	41.152	625	7.630	30.402	19.980	10.502	306	12.780	20.621
Dist of Columbia	766.778	178.171	86.375	65.222	80.561	60.000	289.055	5.000	2.000	394
Florida	2,769.187	916.625	30.021	99.611	72.723	99.806	278.808	21.384	37.869	1,212.340
Georgia	542.454	154.057	17.940	30.265	44.050	90.722	130.777	6.888	4.338	163.417
Idaho	92.006	47.756	—	3.200	12.500	4.150	19.400	5.000	—	—
Illinois	4,577.199	1.762.307	48.801	179.948	278.935	840.111	756.230	111.307	305.581	293.979
Indiana	1.978.343	596.981	12.348	174.260	275.622	504.943	260.305	84.966	54.926	13.992
Iowa	1.112.023	324.013	12.833	54.728	157.944	126.078	197.734	137.227	48.338	53.128
Kansas	761.600	344.816	75.109	29.740	109.851	57.039	87.325	24.116	32.510	94
Kentucky	657.961	213.171	42.159	40.387	87.850	99.499	82.909	12.464	18.867	60.655
Louisiana	948.488	310.440	36.435	89.680	163.585	143.475	169.895	2.575	32.244	159
Maine	189.441	69.558	23.494	31.697	25.258	14.622	14.835	3.109	6.868	—
Maryland	1.319.337	419.093	58.974	140.331	173.380	186.015	136.893	21.810	33.967	148.874
Massachusetts	2.108.814	637.319	161.787	228.779	328.583	312.379	287.196	10.796	104.018	37.957
Michigan	3.724.135	1.297.953	60.866	317.758	401.594	490.083	423.409	20.318	436.114	276.040
Minnesota	716.727	224.361	9.348	46.812	67.489	147.991	170.176	14.502	28.917	7.131
Mississippi	236.387	90.837	5.085	9.566	25.173	36.405	57.208	4.825	7.288	—
Missouri	1.516.436	577.700	10.041	72.636	90.151	144.464	539.601	26.355	12.600	42.888
Montana	196.005	107.917	7.493	3.320	3.387	18.418	45.047	5.922	1.500	3.001
Nebraska	373.410	68.999	30.500	20.600	74.082	57.650	66.068	3.450	52.061	—
Nevada	199.860	83.000	12.054	16.500	22.000	25.000	38.806	2.500	—	—
New Hampshire	69.530	22.038	5.500	5.445	6.501	17.289	9.368	1.218	1.231	—
New Jersey	1,233.592	353.852	54.655	122.479	176.215	256.500	182.700	36.374	16.384	34.433
New Mexico	228.642	83.272	7.955	46.058	59.556	8.771	18.830	1.050	3.150	—
New York	4.739.136	1.409.275	116.890	996.034	427.751	566.415	827.513	54.387	123.235	217.636
North Carolina	588.991	129.136	18.760	40.182	66.446	80.793	87.598	17.146	52.178	196.752
Ohio	5.088.505	1.554.359	130.461	407.570	739.621	1.034.779	692.287	120.170	87.731	321.527
Oklahoma	328.218	112.381	21.810	13.038	52.759	38.059	71.137	7.490	11.483	61
Oregon	527.942	125.510	18.530	62.636	28.868	102.492	152.456	15.182	14.809	7.459
Pennsylvania	3.867.221	1.071.909	103.237	317.890	669.807	761.010	420.117	94.146	185.421	243.684
Rhode Island	232.252	102.580	13.020	14.000	1.400	36.800	39.245	2.660	—	22.547
South Carolina	133.879	21.726	7.002	3.508	3.453	11.145	10.962	1.438	747	73.898
South Dakota	119.673	14.377	371	645	10.806	2.616	15.561	248	25.183	49.866
Tennessee	560.512	168.612	21.460	25.375	49.400	123.583	118.612	1.350	11.637	40.483
Texas	3.324.721	1.271.837	233.647	115.202	323.186	501.390	764.803	29.655	54.174	30.827
Utah	357.236	200.600	21.989	15.670	28.995	36.846	44.537	4.413	1.802	2.384
Vermont	39.520	13.039	3.681	4.500	1.700	7.750	4.075	2.375	2.400	—
Virginia	1.186.976	305.129	160.742	78.876	49.383	207.264	261.107	18.705	11.098	94.672
Washington	1.044.236	351.408	66.625	29.250	123.331	142.261	237.340	15.750	44.700	33.571
West Virginia	592.909	43.758	4.115	14.227	30.254	160.463	40.078	5.540	16.577	277.897
Wisconsin	1.501.875	515.097	23.406	135.061	276.750	238.775	178.153	50.005	36.261	48.367
Alaska	90.220	3.725	31.000	5.200	1.000	2.350	500	10	—	46.435
Other(1)	178.562	33.415	15.610	19.210	39.026	12.305	50.831	360	7.805	—
Total	63.120.993	21.424.485	2.227.527	4.917.518	6.613.402	9.153.398	9.956.045	1.161.715	2.128.179	5.538.724

(1) Includes North Dakota and Hawaii; the single reports received from these areas did not permit separate listing without raising the possibility of disclosure of individual company figures.

School for Block Makers

Since early last year the block industry and its customers have been the beneficiaries of an interesting experiment in public relations that holds forth a great deal of promise for the future. We refer to the school for block makers and block users being conducted by the Besser Company at Alpena, Michigan.

In 1955 over 100 block makers trekked to this northern Michigan city to discuss better ways of manufacturing better concrete products, and an equal number have participated in the program so far this year. They have come from practically every state in the Union and from several foreign countries as well, and not all of them have represented, as you might reasonably expect, concerns that operate the particular make of equipment which originates at Alpena.

The present curriculum involves a week of intensive work on such fundamentals as materials and methods, curing, cubing, and mechanical and electrical operation and maintenance of various types of equipment—all topped off with a lecture-demonstration-discussion session on the product and its proper use. A second week of more detailed work on a particular phase of the course is available for those who can afford the additional time.

Perhaps the most striking, and surely the most rewarding, characteristic of the school for block makers is that the instructors a good share of the time are learning just about as much as the students, and the students in turn learn almost as much from other students as they do from the teaching staff. This is hardly surprising when you stop to consider that a typical class may represent from 100 to 200 man-years of practical experience in block making. All classroom sessions are conducted with full awareness that the student in this novel school is seldom a neophyte, and that each one may very well know a good deal more about some particular subject than anyone else in the class, including the instructor.

By drawing liberally on this rich source of practical knowledge, the school staff have avoided the dry, aca-

● In these three photographs instructors Robert French, Frank Smigelski (in dark coats, below left), Weir Gresham (right), and school director Karl Nensewitz (in dark coat, below right) are shown presenting some of the practical demonstrations which are a feature of the Besser school.

demic approach to teaching, and most of the class-room sessions sound far more like round-table discussions than formal lectures. The curriculum, too, benefits from the constant interchange of ideas and experience, since worthwhile information brought out in one session is promptly incorporated in the notes for the following session.

Despite the casual air of informality that results from the two-way character of class-room discussions, there is a fairly rigid framework of organization to assure that each session will cover the prescribed basic subject matter. Instructors work from well-prepared lecture notes, and liberal use is made of visual aids and practical demonstrations.

Excellent colored flip sheets have been prepared for most of the major subjects covered in the course—these supplementing and amplifying the instructors' comments so that members of the class both see and hear the information being presented. Perhaps no better means could be adopted to describe the technique, and to demonstrate its effectiveness, than to reproduce here a portion of one of the lectures along with the accompanying flip sheets. Because of the general interest in the subject, we have chosen for this purpose the discussion of equilibrium temperature and recommended curing cycle, which is part of a lecture entitled "Modern Curing of Concrete Block". The instructor's comments are as follows:

When steam emerges from a nozzle it comes out in a condition known as super heated steam. Upon entering the kiln, which is at a lower pressure than the steam in the nozzle, a sudden expansion of the saturated vapor may produce a temporary condition in which the steam continues to expand as super heated steam without any condensation taking place. Super heated steam of this nature is not stable and precipitates in the form of water vapor due to loss of heat to surrounding objects. The temperature of the mass in the kiln is raised by the latent heat given off during condensation until thermal equilibrium is restored. This condensation takes place throughout the kiln only if the velocity of the steam employed is correct, depositing moisture on all the masonry products present in the kiln. If the velocity is too great the super heated steam will pass all the way to the rear of the kiln before condensing and will tend to remove moisture from the block as it passes over them.

The steam pressure at the kiln nozzle must not exceed 10 to 12 psi. At higher pressures the steam becomes too hot and dry and also causes a drying out of concrete to take place, the same as too high a velocity will do, causing a hard and brittle product.

The most desirable kiln temperature range is 150 to 180 degrees F. Some authorities on the subject suggest 170 degree maximum for sand and gravel concrete and 180 degrees for lightweight concrete, but the correct temperature must be ascertained through an equilibrium check. It must be emphasized, however, that these temperatures can only be possible under ideal conditions. Seasons may in some places necessitate lower maximum temperatures.

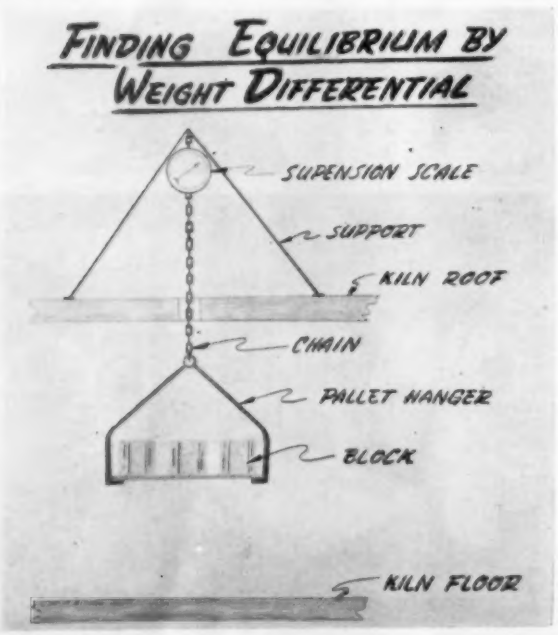
The deciding factor on maximum kiln temperatures is the equilibrium level, at which the temperature of the block in the kiln and the surrounding air are the same.

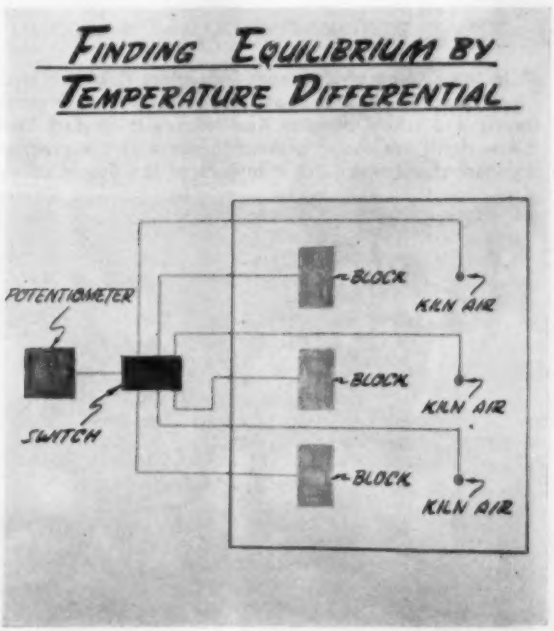
The temperature of the block in a kiln lags behind the rising temperature of the kiln air and this differential in temperature effects a dew point on the masonry unit with the result that moisture is added to the concrete. This condition is highly desirable because the concrete block mix at this point does not contain the desirable minimum quantity of water to produce the normal products of hydration in portland cement. The concrete will continue to take on moisture as long as the concrete temperature is below the dew point temperature of the air in the kiln.

As the steam is being introduced, the block temperature gradually tends to reach that of the surrounding air, and at this equilibrium level the steam should be shut off. Actual tests conducted in the field show that moisture is deposited on the block at a varying rate until the condition of equilibrium is reached. Also, if the vapor pressure of the air in the kiln is greater than the vapor pressure of the water in the block, a transfer of moisture will occur from the air to the block. If the equilibrium temperature is exceeded, the vapor pressure of the water in the block will exceed the vapor pressure of the surrounding air and a water loss from the block will occur which would permit the loss of valuable chemicals combined with the water.

The equilibrium temperature will naturally vary somewhat with the type of block, material, kiln size, speed of temperature rise, weather and other factors, but it usually is somewhere between 150 and 180 degrees. All block makers should have their kilns checked to determine the equilibrium temperature, since very serious damage to concrete will take place if steaming is done after equilibrium is reached.

A check for correct equilibrium temperature in a kiln can be made by using either of two methods. The first





method, which we will describe in detail, can be performed without the presence of an expert and with minimum equipment. It functions on the basis of weight change in a block during the heat up period. As the temperature rises in the kiln, the block will take on moisture until the equilibrium temperature is reached. At this point the increase in weight will cease.

If an assembly can be arranged whereby a pallet of three blocks can be suspended from a scale during the curing operation, the weight changes can be observed. The simplest arrangement is as follows: A suspension type scale, accurate to 0.01 pound, should be supported on the roof of the kiln with a chain suspended from it that is inserted through a small hole in the roof of the kiln, with the other end of the chain fastened to a hanger which in turn holds the pallet of three blocks suspended midway between the ceiling and the floor. The weight of the green block is recorded at room temperature, the steam is turned on, and scale readings are made at 10 or 15 minute intervals. When the block cease to increase in weight the kiln has reached equilibrium and the steam should be shut off. Concrete masonry units will take on moisture when they are cooler than the dew point temperature of the surrounding kiln air, and they will lose moisture at equal temperatures due to a difference in vapor pressure.

The second and more accurate method of determining equilibrium temperature requires more expensive equipment and the presence of a person familiar with their operation and function. It is based on the fact that the temperature rise of the block will lag behind the temperature rise of the kiln air until equilibrium is reached.

The equipment necessary consists of thermocouples, a potentiometer, reading in degrees of temperature, and a quick change switch to enable fast reading of the different thermocouples. The thermocouples are located at different levels in the kiln and an equal number in blocks at different levels. The thermocouples are then connected to the potentiometer through the quick change switch so that all readings can be made in a short interval of time. Readings are taken every 15 minutes. When the temperatures in the block and in the kiln air are the same the steam should be turned off because equilibrium has been reached.

The accompanying table, which we have reproduced directly from one of the flip sheets, shows the results of a test run by both methods used to determine equilibrium. The graph shows how the temperature of the block lags behind the temperature of the air until equilibrium is reached, and then begins to lead due to the additional heat of hydration being produced in the block.

In establishing a curing cycle it has been found necessary to allow a pre-set period for masonry units. This is because high velocity steam entering a kiln immediately following the placing of the last rack may cause case hardening of the concrete due to accelerated hydration before the concrete attains its initial normal shrinkage, with the result that crazing or shrinkage cracks may develop. Concrete units should be allowed to pre-set for a minimum time of at least two hours. The additional time the first blocks receive will not cause any harm; in fact, it is quite beneficial. The pre-set should take place in an atmosphere that will raise the block temperature to at least 70 degrees F. During cold seasons of the year the period should be lengthened to possibly four hours because it will take more time to raise the temperature of the green block due to colder raw materials being used. Initial set in concrete will not take place very fast in an atmosphere below 70 degrees F.

After the proper pre-setting time the steam is turned on and the temperature of the kiln and block are raised until the equilibrium temperature is reached. The temperature of the green block should be increased at the rate of 60 degrees per hour. The temperature of the block will vary from that of the kiln air, so do not confuse the two. The air temperature will increase at a faster rate than the block, and the rate of temperature rise will vary as the equilibrium temperature is approached. The important rate to watch is that of the block. The rate of temperature rise of the kiln air is secondary.

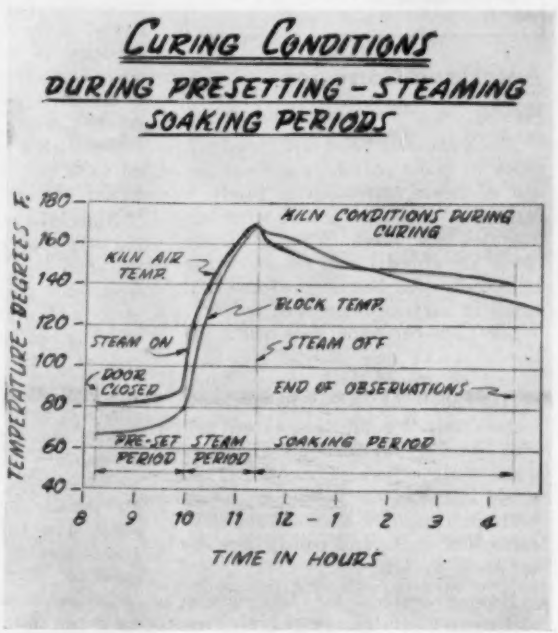
After equilibrium has been reached and the steam has been shut off, the block should be allowed to stand undisturbed in the kiln for a period of time known as the soaking period. During the soaking period the temperature drop in a well-constructed kiln will be approximately 4 to 7 degrees per hour. During this period the absolute humidity of the air is constant with respect to the dew point of the air, and it follows that as the temperature of the kiln falls, the relative humidity of the air increases until the kiln temperature reaches the dew point temperature. Further drop in temperature will deposit moisture on the block. In this manner a high humidity is maintained in the kiln during the soaking period.

When the block is removed from the kiln, it is generally at a higher temperature than the surrounding atmosphere, and because of the difference in vapor pressure existing, it will throw off water vapor thereby decreasing the water content of the block. The amount of moisture given off is entirely dependent upon the difference in temperature and vapor pressure between the block and the surrounding air.

The foregoing discussion of curing goes on with the same practical, down-to-earth treatment of problems in-

KILN CONDITIONS-CURING CYCLE

	THERMOCOUPLE TEMP.						SUSPENDED WEIGHT	
TIME	1	2	3	4	5	6	ASS'Y	NET CHANGE PER BLOCK
A.M.								
8:15	72	68	69	97	82	79	187.62	-0.04
10:00	97	79	77	99	87	81	187.50	+0.32
10:15	114	109	114	125	123	122	188.59	+0.57
10:30	130	128	134	137	134	135	189.34	+0.71
10:45	142	142	144	149	147	147	189.75	+0.92
11:00	155	154	156	159	157	157	190.38	+1.08
11:15	164	164	165	168	167	167	190.87	+1.13
11:20	170	170	169	171	170	170	191.01	+1.13
11:21	167	166	163	168	165	162	191.01	+1.08
11:25	168	166	155	164	163	153	191.01	+1.04
11:30	168	166	151	164	162	147	190.85	+1.04
12:00	163	162	136	161	157	132	190.75	+1.04
P.M.								+1.04
12:30	159	156	132	157	154	125	190.75	+1.04
1:00	155	153	127	154	150	122	190.75	+1.04
1:30	155	150	127	152	148	119	190.75	+1.04
2:00	154	147	127	153	147	119	190.75	+1.04
2:30	152	144	126	150	144	119	190.75	+1.04
3:00	149	142	124	148	143	118	190.75	+1.04
4:30	146	134	118	143	140	118	190.75	+1.04



volving kiln design, most efficient capacity, boiler selection and similar matters. The people who are conducting the school for block makers freely admit that some of the theoretical discussions are necessarily controversial, but they point out that all the material presented in the course is based upon the best information obtainable, and it is subjected to frequent change as new data become available.

Although the school was originally conceived as a project mainly of interest to block plant superintendents, enrollments so far have included a number of plant owners, salesmen, engineers, machine operators, electricians and mechanics. Every effort is made to adapt the course of study, almost on a session-to-session basis, to the specific interests and needs of the individuals who compose a particular class. Thus each man has a tendency to take away with him a new concept of his importance in the block industry, and a better understanding of his opportunity and responsibility to contribute to the industry's future growth by doing a better job.

The school for block makers is new, and the people responsible for it feel that its present stage of development represents little more than a beginning. But certainly it is a promising beginning, and there would seem to exist every possible inducement to carry it on. In the forseeable future there is a strong possibility of longer sessions, and of more practical work made possible by the construction of a full-scale block plant, to be operated for research purposes as well as part of the school. A published manual of plant practice, based entirely on material developed for class presentation, is another strong possibility.

Whether these ambitious plans mature quickly or take considerable time to reach fruition, it is safe to predict that the school for block makers will go on making an important contribution to standards of craftsmanship throughout the block industry.

LETTER SYMPOSIUM ON CORROSION

EDITOR'S NOTE

This publication recently received a letter from a consultant who specializes in the design of concrete block curing systems in which some interesting and provocative theories were advanced regarding corrosion in high-pressure-steam cylinders. We sent copies of this letter as a memorandum to a number of individuals who are connected with the block industry and who have a valid interest in the subject. The original letter and the comments we have received to date are printed here strictly as a matter of information.

Autoclave Corrosion

Sir:

When concrete block are cured entirely in moist chambers without the use of steam, corrosion is rarely a serious problem, no matter what aggregates are used. When concrete block are cured by steam in curing kilns, corrosion becomes marked and exists in varying degrees of severity. While such corrosion does affect the life of racks and pallets, it is accepted as one of those concomitants of the block industry. Some block makers install equipment to oil pallets, some try various preservatives, while still others do nothing. In many instances the cost of corrosion preventatives may be more than the cost of the racks and pallets they are supposed to save.

However, since the introduction and more extensive use of high pressure autoclaves, corrosion has become a serious problem. Actually, the problem is intensified because corrosive action becomes much more severe at high temperatures and high steam pressures. Further, the damage done to valves and fittings involves substantial sums of money, not to mention the possibility that the autoclaves themselves might be rendered worthless.

Corrosion manifests itself in many ways. Racks on which pallets are loaded are generally built up of low-carbon, hot-rolled steel. Corrosion attacks this variety of steel most actively, since it has a very limited capacity to withstand any kind of corroding agency. Pallets, while made of similar type steel, do not suffer so severely, since they usually are protected with a layer of concrete debris on each side which serves as a protective shield.

Autoclave interiors definitely show the effect of corrosion, but because the shell steel is a superior grade of steel, such corrosion is in the nature of a tighter and finer scale, and its effect is not nearly as great as in the case of racks.

The most pronounced and serious effects of corrosion show up in valves, checks, steam traps and other similar accessories. These are made of cast iron housings, and all interior fittings are usually brass, bronze or similar alloy. The corrosion effect on these accessories is most severe. The immediate effect is to render these accessories unsuitable for use, since they can no longer deliver a tight closure, and the resulting leakage makes it impossible to build up and maintain steam pressure at the desired point. Replacement of parts is costly in materials and labor, not to speak of actual time lost in operating time and production. Some autoclave users have replaced valve parts with stainless steel parts, which are extremely costly.

On the basis of actual performance in four separate installations of high-pressure-steam cylinders, designed by the writer, the following corrosion effects have been noted:

Installation No. 1: Capacity 28,000 units in 24 hours; in operation between 3 and 4 years; materials include cinders, limestone screenings, sand, lime, and silica flour; no corrosion condition noted on racks and pallets; no valve replacements, and a fine tight oxide in the autoclave shell.

Installation No. 2: Capacity 11,000 units in 24 hours; in operation 6 months; materials include cinders, sand, silica flour and cement; no corrosion on racks and pallets, no valve leakage, and a slight oxide in the autoclave shell.

Installation No. 3: Capacity 10,000 units in 24 hours; in operation 1 year; materials include expanded slag, sand, fly ash, silica flour and cement; slight corrosion noted on racks and shell, and some valve leakage.

Installation No. 4: Capacity 11,200 units in 24 hours; in operation 5 months; materials include air cooled slag, sand, silica flour and cement;

strong corrosion noted on racks, pockmarks showing on the shell interior, and some valve leakage.

Blast-furnace slag and cinders sometimes contain a significant quantity of sulfide sulfur and some portland cement or fly ashes contain a small quantity of sulfide sulfur. This sulfide sulfur is partially converted to hydrogen sulfide during high pressure steam curing. The sulfur present as sulfates in the various materials, such as the sulfur in calcium sulfate (gypsum) in portland cement, would not be converted to hydrogen sulfide.

Many tests have been made to try and learn the cause of corrosion in autoclaves, but very little actual data has been obtained. The logical inference would be that there is only a very small quantity of the corrosive element—in fact, a quantity probably so small that its presence can not be detected with ordinary equipment.

The writer believes that the corrosive agent in autoclaves is sulphuric acid; and further, that this acid is produced in the curing cycle through catalytic action. Coming in contact with steam which had been leaking into an empty autoclave through a corroded valve seat, the writer was aware of the presence of hydrogen sulphide, a colorless gas distinguished by a strong and unpleasant odor. It consists of two molecules of hydrogen and one molecule of sulphur, and its chemical nomenclature is H_2S.

In the presence of iron rust or oxide, and particularly in an atmosphere of saturated steam at 140 psi, hydrogen sulphide forms sulphuric acid. When this fresh sulphuric acid comes in contact with exposed steel, it attacks the steel and produces rust. This additional rust area produces more sulphuric acid, and an increasing spiral of corrosion continues until the source of the rust is consumed.

The amount of acid produced per cycle of operation is probably not great. It is only the outer faces of the block that come into contact with steam and the exposed area of material in the block must constitute the active element in the production of hydrogen sulphide.

When using an aggregate that contains 1.0 per cent sulfide sulfur, rough calculations indicate that for a charge of 2500 units weighing 30 pounds (22 pounds of aggregate) each, the total sulfide sulfur content would be about 550 pounds. Assuming penetration of about 1/16 of an inch and figuring total exposed area, we might state that about 90 pounds of the sulfur becomes active in the conversion. This would create about 270 pounds of sulfuric acid. This quantity of acid created twice daily will surely cause corrosion, a fact which actual experience has confirmed.

The really strange thing is that the corrosion has not proved more severe. This might be explained by the great amount of dilution that takes place in a curing cycle. Total steam supply is about 20,000 pounds of water. Thus 400 pounds of acid in that quantity of water would represent at most a two per cent solution.

In this instance our antagonist is clearly sulphuric acid. Any high school graduate who has passed his elementary chemistry course can furnish the correct answer. To render an acid harmless you must combine it with an alkali. An alkali in proper amount and concentration will neutralize the acid through the creation of a neutral salt.

In the writer's estimation, research on the problem of corrosion in autoclaves should seek to answer the following questions:

1) What agent should be used to neutralize the acid which seems to be the cause of corrosion?

2) Shall it be in the form of a solid, liquid or gas?

3) How much of it must be used?

4) How may it be introduced into the autoclave?

Whatever system is adopted for controlling corrosion, some technique will have to be developed for measuring performance. This could perhaps be accomplished by analysis of outgoing condensate or steam vapors, or by studies of standard exposed steel areas, or by means of a continuous sampling record of the kiln atmosphere throughout the curing cycle.

The writer also believes that the whole corrosion problem can be alleviated through beneficiation of aggregates before they are delivered to block makers. Among the several possibilities are natural weathering, treatment with water sprays, treatment with alkaline solutions, and roasting to burn off sulphur content. The determination of the most effective and economical method of treatment is a fairly routine research problem.

The individual concerns, the industries, and the excellent technical associations which operate in the concrete field have repeatedly combined their talents and resources to solve far more difficult problems. There is absolutely no reason to believe that the autoclave corrosion problem won't respond to the same brand of determination and enthusiasm.

—W. S.

NCMA Takes Action

Sir:

The National Concrete Masonry Association is investigating the problem which a few plants are experiencing with respect to serious corrosion of autoclaves and racks, especially the latter. As a first step we are endeavoring to determine the extent of the problem and whether it is consistently associated with any one or several possible contributing factors. We will know more about these aspects when we have compiled and analyzed the returns from the questionnaire which recently was sent to all NCMA members using high pressure steam curing.

We have certain tentative theories on the cause of this problem but feel that they should be substantiated by more evidence before being widely publicized. Experience with autoclave curing during the past 25 years or more definitely proves that the curing method itself is not the culprit. However, it may be instrumental in actuating causative factors which are more or less dormant in conventional curing. Our observations at several plants strongly suggest that the trouble is associated with acid forming compounds or gases contained in some aggregates.

Although a few plants have suffered extensive corrosion of racks, and to a much lesser extent of the autoclaves, their experience in this respect cannot be considered typical of the majority of plants with high pressure steam curing. There are many autoclave plants where, according to reports and direct observations, there has been less trouble with corrosion than is often encountered in plants using low pressure steam curing. Nevertheless, it is a problem which certainly cannot be ignored and demands a solution. At least one plant which formerly had considerable trouble with corrosion has eliminated it to their satisfaction by the simple and economical expedient of injecting a small and controlled amount of steam cylinder oil into the steam line. We do not know that this remedy will be equally successful in all plants where conditions which promote accelerated corrosion are present, but it would seem to merit a trial.

Companies planning to install autoclaves should look into the problem so that an intelligent decision can be made regarding the need for corrosion resistant metals at critical points and the use of other measures to minimize corrosion. I believe there

(*Turn to page* 48)

Plant Discipline

It doesn't "just happen" . . . you have to plan for it

Somebody has said that a good half of the labor arbitrators who now make a good living in this country would either starve to death or be chased into other lines of work if it were not for the unending procession of employees who have grievances as a result of disciplinary action. Often as not, the main source of the difficulty in this connection is the absence of clearly stated rules and regulations. This inevitably results in inconsistency, in failure to make the punishment fit the crime, and in the pursuance of a tough policy one day and a lax policy the next.

A systematic set of sense-making disciplinary rules is as essential to the operation of an efficient plant as the machines, tools and other facilities of production. They bear very much the same relationship to good management-employee relationships as preventive maintenance bears to general operating efficiency.

The following set of basic principles has been called to our attention as providing a useful guide to plant owners and managers who may have neglected developing their own disciplinary code. It was drawn up for manufacturing superintendents of Moore Business Forms, Inc., Niagara Falls, New York, by Edmund Johnstone, industrial relations manager.

Business discipline, Mr. Johnstone says, can take account of such factors as:

1. Long and satisfactory service.

2. Family conditions and current personal problems.

3. Management laxity in condoning similar offenses in the past.

4. Lack of clear understanding of the rules, perhaps due to poor explanation or communications.

5. Dissatisfaction within a department arising out of attitudes and conditions known to management but not heeded.

As guiding principles for administration of a code, he suggests:

1. The main purpose of the code is protection of the group and not punishment of the individual.

2. The object of punishment is, first, to encourage others not to commit the same offense and, second, to serve as a salutary lesson for the offender.

3. Prompt attention to minor infractions (not necessarily involving punishment) is the most effective way of avoiding major ones.

4. It is essential to establish all pertinent facts.

5. Calm appraisal of the facts is necessary before passing judgment.

6. Vindictiveness has no place in justice.

7. Repeated offenses by the same person merit increasing penalties.

8. The offender has the right to know the charges against him and to face the complainant, and he must be given every opportunity to state his own case (with advice and assitance if he so desires.)

9. The offender has the right to appeal.

10. Incompetence, physical or mental incapacity are not matters for disciplinary action but should be handled as training problems or as causes for severance with reasonable notice.

11. It is essential that no penalty be imposed in the heat of the moment.

Johnstone offers seven requirements for a satisfactory code:

1. Rules should be few and easily understood.

2. No rule should be included which it is not intended to inforce.

3. Rules must be such that they can be administered effectively.

4. There must be adequate training in the code.

5. Infractions of rules must be visited with penalties commensurate with the seriousness of the offense.

6. There should be a reasonably uniform practice for investigations and making of decisions.

7. Rules should not infringe upon the basic rights of the individual and should be consistent with accepted codes of behavior.

Offenses may be classified in three categories, according to Johnstone's guide: Class A—violence, actual or threatened; refusal to carry out legitimate orders, immorality on company property or time, wilful disregard of safety rules endangering the lives of others, habitual addiction to intoxicants.

Class B—gross neglect in performance of duty, dishonesty, disorderly conduct, gambling on company property or time (other than such minor matters as small departmental pools on the World Series, and so forth), wilful damage of company property.

Class C—Isolated instances of intoxication, smoking in unauthorized places, irregular or continually tardy attendance without just cause, idling or causing others to idle, carelessness in handling company property, thoughtless lack of compliance with safety rules, horseplay.

For Class A offenses, he recommends, instant discharge is appropriate in clear-cut cases, or immediate suspension if there appear to be mitigating circumstances. A layoff up to three months may be applied if investigation makes discharge seem too harsh a penalty.

Class B offenses, he says, are not matters for instant discharge, although discharge may prove proper after investigation. After preliminary consultation, suspension pending full investigation is proper. In cases not meriting discharge, he suggests layoff up to one month.

For Class C offenses, if the offender is creating a hazard, the foreman should send him home, preferably in agreement with his union representative. Otherwise the case may be handled routinely, with penalties ranging from written reprimand to a week's layoff.

COMMENT
from the BUTLER ENGINEER

Of Ready Mix, Roadbuilders, Blocks and Awards

Very interesting, very gratifying, very sound is the sharp trend toward automation in the concrete products industry . . . When Butler Bin piloted the first completely automatic, one-man operated Roadbuilders Plant we expected the rush that followed. And Butler automatic, electronic batching, led to quick conversions in the Ready Mixed field.

And now we find that the concrete block field has been equally alert to see the tremendous advantages of automation in product control and in production economy.

•

Incidentally, Butler entered the automation field in the right position: first—and we still are.

•

And speaking of Roadbuilders set-ups, one of the fine national magazines, CONSTRUCTION EQUIPMENT, cited the Butler Automatic One-Man Roadbuilders as Product of the Month. This is an award made only after careful analysis and screening by a completely impartial board of judges. We're very proud — but we're *not* in the nose-in-the-air department. Head in the clouds maybe but feet very much on the ground — and determined to win the Award again. A sweeping bow to CONSTRUCTION EQUIPMENT. A martini will be hoisted in thanks by the Butler Engineer at 5:00 P.M. today. Maybe every day.

•

Went to the movies t'other night. Kim Novak in "Picnic". Those who can take their eyes off the delectable Miss Novac, will see a Butler Ready Mix Plant in the background in one scene. You missed the background? I don't wonder.

I'm Kim-minded,

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

$ales CLINIC

Home-Owner's Heaven

One of the most significant changes in our economy in the past several years is going to keep money jingling in the pockets of concrete producers for a long time to come. This is the tremendous increase in both the number of homes built and the percentage of *home ownership*. Reasons: upgrading of middle incomes; young married people leaving the homes of in-laws; and condemnation and tearing down of rickety or obsolete buildings.

Early this year 55 per cent of all non-farm families owned their homes as compared with 49 per cent in early 1948, according to a survey of consumer finances by the Federal Reserve System. The number of home-owning families increased from 18.6 million to 24.9 million, while the number of mortgaged owner-occupied houses increased from 8.7 million to 13.2 million during this same period.

These are encouraging statistics to the ready-mix and concrete products industries, whose members have seen one of the primary markets for their products increase by as much as 30 per cent during the last decade.

Addresses For Free

Direct mail is now rather generally accepted as one of the more effective media of sales promotion for the building materials trade. Direct mail is highly selective and in some fields can often give the most exposure per advertising dollar invested. Yet no matter how good the direct mail message, how clever or well-thought-out the campaign, or how provocative the product offered, direct mail advertising is only as good as the lists you use. And a good many advertisers use incredibly bad, out-of-date mailing lists.

The primary source of your mailing list is, of course, your customers. Even this list, however, can get dated quickly if it isn't periodically checked. Other mailing lists — of almost any nature or description that you might want to designate — can be purchased or rented. However, before you invest money in a mailing list, you should be aware of ten sources (as listed in a recent issue of *Sales Management Magazine*) through which mailing lists can be compiled at little or no cost. These would include:

TRADE DIRECTORIES — Almost every industry or trade publishes at least once a year a directory of manufacturers, dealers etc. which they sell for a nominal cost.

CITY AND STATE DIRECTORIES — Many cities issue annual or semi-annual lists of residents and business firms. City and county lists also include voter registrations, tax payers, building permits, automobile licenses and many others. Most states publish state registries available for a fee through the Secretary of State.

FINANCIAL DIRECTORIES — Credit rating books such as Dun & Bradstreet give a picture of financial responsibility.

CLASSIFIED TELEPHONE DIRECTORIES — Both local and out-of-town books can be purchased for a small fee through your telephone company.

MEMBERSHIP LISTS — Chambers of Commerce, fraternal organizations, service clubs, trade associations, social clubs and similar organizations have membership lists available — some for sale, some for free.

BUSINESS MAGAZINE LISTS — Many business publications have direct mail departments with lists of manufacturers, wholesalers, distributors and even retailers for industries they cover. If they don't have such lists, they can often tell you where to find them.

GOVERNMENT LISTS — A list of the business directories (and there are a considerable number of them) published by the U. S. Government is available without charge from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

CONVENTION AND EXHIBIT COUPONS — One of the major reasons for exhibiting your product at a trade show or exhibit is to build up a list of interested names for direct mail and personal contact.

INQUIRERS — People who take the time and trouble to ask you for information on your product should certainly be added to your mailing list.

OTHER SOURCES — You may find additional suggestions in the Directory of Mailing List Sources, published by the Dartnell Corporation, Chicago.

Creative Calling Card

The most often-used sales promotion device — the individual business card — is probably also the one on which the least amount of imagination is expended in design. A startling or provocative calling card, within the broad limits of good sense and good taste, can do a remarkable job of calling attention to an individual, a company or a product — simply because it has very little to compete with. The Alexander Film Company of Colorado Springs has come up with an imaginative business card that is, in fact, a tiny promotion booklet on the company's services and products. The name of the company representative is imprinted on the face of the card (or booklet) and the inside stresses a few brief but emphatic selling points. The whole thing is just a mite larger than the ordinary business card — and could be adapted quite nicely to the building products field.

Hold It, Please

Quite often an alert salesman can make his hobbies work for him. Consider the case of a gentleman who sells industrial finishes and is also a fanatical camera enthusiast. He always carries his camera with him, and one day — in demonstrating the workings of the camera to one of his prospective customers — he took a shot of the prospect and later mailed a print of the picture to him, along with the salesman's calling card. He got an order, a great deal of good will, and an idea. Now, whenever this salesman calls on a potential customer, he asks if he can take the customer's picture. Invariably the answer is "Yes". So, a week later, the prospect gets a 3-D cardboard viewer, a shot of himself to insert in it, and the enterprising salesman's calling card. And this technique is definitely selling merchandise. One warning, though: the salesman also happens to be an excellent photographer. This sales approach is not recommended for blurred, fuzzy, or out-of-focus pictures.

Prestressing

(*From page* 29)

Mr. Dean stated that initially the State Road Department felt obligated to furnish duplicate designs of all bridges in steel as well as concrete. However, as soon as the effect of the mass production and standardization came into force, the prestressing designs were always the low bid. Therefore, the State Road Department will issue in the future designs which are limited to prestressing, except for very long spans or other special cases.

Both in panel discussions and discussions from the floor in technical meetings, the potentials of the channel section for short span bridge members were brought out. Ross Bryan, a prestressing consultant from Tennessee, stated that he thought the channel section offered an excellent short-span bridge structure at the lowest possible cost.

Corridor discussion revealed that several hundred firms are going into the business of manufacturing pretensioned concrete members this year. The majority of them will make Double Tees along with custom made beams for both buildings and bridge work.

Several of the large producers of Double Tee and channel roof slabs have switched over to the use of lightweight aggregate entirely. Peter Verna of Concrete Materials, Inc., Charlotte, North Carolina, stated that his firm has orders for a million square feet of Double Tees all made of lightweight aggregate. Basalt Rock Company of Napa, California, is also specializing in lightweight aggregate on Double Tee production.

A technical progress report released by the University of Florida Engineering and Industrial Experiment Station, covering Curing Methods and Duration Studies of Pretensioned Units by Dr. A. M. Ozell and W. D. Givens, was the subject of considerable corridor comment during the convention. One of the interesting conclusions reached in this report is that stress releasing can be accomplished in the beds when the concrete strength has reached 3000 psi compressive strength and when 7/16-inch strands are being used. This release at the lower strengths has been carried out by several plants with excellent field results. However, this is one of the first laboratory projects to confirm the field experience.

Discussions at the convention indicated that continuity is starting to play a much larger part in pretensioned members. A great many of the designers stated that they were obtaining excellent results in continuity on Double Tees and channels. In these cases, the Double Tees are set on the supporting beams and behave as simple beams under their own dead load. The ends of the Double Tees are then attached rigidly to the opposing Double Tee at its end and to the supporting beam. This is done with a field pour and by adding mild steel to the ends of the slab. After the rigid end connection is made the entire roof slab then behaves as a continuous member for its live load. The feeling at the convention was that this type of continuity will receive much wider acceptance in the future in connection with roof slab design.

Tile Tester

● Philip W. Manson, professor of agricultural engineering at the University of Minnesota, with a portable model of a machine he has developed to test concrete drain tile hydrostatically.

Dodson's Digest

Bob Chapman learns about summer concreting

Called Bob Chapman on the phone the other day. Bob is an old school chum of mine who owns a thriving concrete-block business on the other side of town.

"Hi, Bob," I greeted him. "Are you in the mood to do a revered school acquaintance a trifling favor?"

"Dodson, what on earth are you doing in town?" Bob chuckled. "I thought you took a vacation all summer. After all, you can't sell any Calcium Chloride for concreting."

"That's where you're wrong!" I informed him, bristling. "I have to work *harder than ever* in the summer to educate skeptics like you on the value of Calcium Chloride in summer concreting."

"Nonsense!" Bob scoffed. "I use Calcium Chloride in the winter, but—"

"I spend *all summer*," I interrupted, "telling concrete men that they can get increased workability and higher early strength *all year long* with Calcium Chloride. Did you know that even at 70 degrees, concrete develops 145 per cent more strength in 24 hours with Calcium Chloride?"

"No, I didn't," Bob admitted, his interest picking up. "Tell me more!"

"Why, if I took a vacation," I went on, "I wouldn't be here to point out that Calcium Chloride cuts curing time in half, so you can free your pallets sooner, increase your capacity, cut costs, and . . . "

"If it's serious enough to make you miss your vacation," Bob broke in, "that's enough to convince me. I'm going to give Calcium Chloride a try. Now by the way, what was that favor you wanted?"

"Oh, that?" I replied. "Never mind. It isn't really important."

"You're holding out on me, Dod," Bob said. "Come on. What was it?"

"Well, if you *must* know . . . " I paused, grinning sheepishly, "I called to borrow your outboard motor. I thought I'd go fishing for a few weeks . . . "

—L. D. Dodson

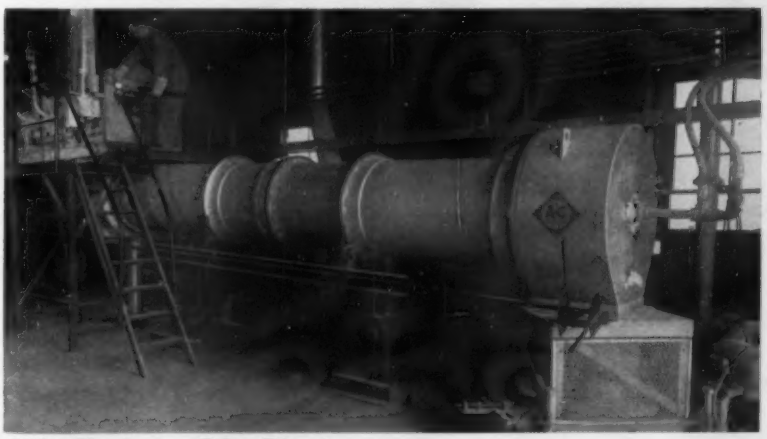
P.S.—Our folder, "How To Make Better Concrete Products and Ready-Mix," is packed with helpful hints on the use of Calcium Chloride in concrete. To get your free copy, just drop me a line. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

Wyandotte®
CHEMICALS
MICHIGAN ALKALI DIVISION
HEADQUARTERS FOR CALCIUM CHLORIDE

MANUFACTURERS' NOTES

Do-It-Yourself Pool

● The Bakelite Company has developed a do-it-yourself, family-size swimming pool to be constructed of concrete block and lined with their heavy Krene plastic. It will be sold in a kit which includes everything except the concrete block.



Allis-Chalmers Pilot Plant

● Allis-Chalmers has announced the opening of a new pilot plant for the purpose of testing, demonstrating, and developing untried raw materials and new techniques in cement making with the ACL traveling grate process.

Ryerson Open House

● An estimated crowd of 16,300 persons attended the Joseph T. Ryerson & Son open house at the company's steel service plant in Chicago on June 7, 8 and 9. Highlighting the event was a 2-hour tour through three units of the company property.

MANUFACTURERS' NOTES

Marquette Vice Presidents

Two new vice presidents of Marquette Cement Manufacturing Company were elected recently. Promoted to the status of officers were technical director Charles E. Wuerpel and manager of engineering and construction Lawrence H. Vroman. Mr. Wuerpel joined the Marquette staff late in 1948 to head the technical department. As vice president he will

C. E. Wuerpel

L. H. Vroman

continue to head the technical department. Mr. Vroman is a veteran of 30 years with Marquette, during which time he worked his way up through the ranks to appointment last year as administrative chief of the engineering and construction departments. Now as vice president he will continue in charge of the same phases of the company's operations.

Receives Safety Award

The outstanding safety record achieved and maintained by all 225 employees of the Marquette Cement Manufacturing Company plant at Des Moines and at the quarry at Earlham, Iowa, was acclaimed recently. The plant received its 6th award of the Portland Cement Association safety trophy, symbolizing accident-free operation throughout 1955.

Zonolite Elects President

John B. Myers was elected president of the Zonolite Company, Chicago, Illinois, at a recent meeting of the board of directors. Formerly vice president in charge of mining and production, Mr. Myers succeeds A. T. Kearney, who continues as board chairman. The company mines and processes vermiculite.

Eastern District Manager

J. W. Pike

John W. Pike has been appointed eastern district manager of Struthers Wells Corporation, Titusville and Warren, Pennsylvania. Previously a sales engineer in the eastern district, he will continue to maintain headquarters in New York City. Mr. Pike has been associated with Struthers Wells in various design and sales positions since 1951.

T. J. Peterson Dies

T. J. Peterson, 82, president and founder of Tamms Industries, Inc., formerly Tamms Silica Company, died recently. Mr. Peterson founded Tamms Silica Company in 1911 and had headed the company in its succeeding 45 years of growth.

Blaw-Knox Appointment

W. C. Berg, Jr.

W. C. Berg, Jr. has been named assistant to the vice president and general sales manager of Blaw-Knox Company, Pittsburgh, Pennsylvania. Formerly roll sales engineer, Mr. Berg joined the Continental Foundry & Machine Division of the company in 1952. His background includes five years as eastern sales manager for a St. Louis refractory manufacturer and nine years as a sales engineer with Gulf Oil.

New Columbia Plant

Columbia Machine Company, Vancouver, Washington, plans to build a $150,000 plant at Mattoon, Illinois. The new plant will be essentially a large machine shop manufacturing mixers, mould boxes, and the Columbia block machine.

Worthington Appointments

Charles D. Cummins has been appointed district manager of Worthington Corporation's Seattle office,

C. D. Cummins

E. D. Schively

according to a recent announcement by William A. Meiter, general sales manager. Since 1949 Mr. Cummins has been assistant district manager. In his new capacity he succeeds E. D. Schively who has accepted a special assignment in Worthington's new Canadian operation.

Blaw-Knox President Cited

W. Cordes Snyder, Jr., president of Blaw-Knox Company, was cited recently for one of the 1956 Horatio Alger awards. The "rags to riches" awards are made by the Horatio Alger Committee of the American Schools & Colleges Association in dedication to our system of free enterprise and the American way of life.

Sales Manager To Retire

Charles Postelle, southern sales manager for Alpha Portland Cement Company, retired July 1. Mr. Postelle has been succeeded by Gene Brown, assistant district sales manager, Columbus, Ohio.

Chain Belt Distributor

The Garrett Supply Company, Los Angeles, California, a division of The Garrett Corporation, has announced an extension of its services in the heavy power transmission equipment field by becoming an authorized distributor for Chain Belt Company products.

Cavity-Wall Licensee

Lapidus Block Corporation, Brooklyn, New York, licensors for Cavity-Wall block, has announced that Fred Woitscheck, president of the Hi-Way Cinder Block Corporation, Rochelle Park, New Jersey, has signed a contract to produce the Cavity-Wall block in his two plants.

Block Assn. Starts Two Research Projects

R. E. Copeland, director of engineering of the National Concrete Masonry Association, has announced the signing of a contract with the University of Toledo for carrying out two important research projects. One project calls for the investigation of factors influencing the tensile bond between mortar and concrete block — information particularly important in establishing working stresses in concrete block walls subject to lateral loads.

The second project involves study of the effect of accelerated carbonation treatments on dimensional stability and other physical properties of concrete masonry units. This investigation will include study of the possibility of using flue gas from a steam boiler as a source of carbon dioxide for carbonation purposes.

Both projects will be under the direction of Professor Edwin L. Saxer, professor and head of the civil engineering department, research foundation.

Texas Industries Acquires Three Companies

Texas Industries, Inc., through a new subsidiary, Louisiana Industries, Inc., has acquired the Schwartz Supply Company, New Orleans, Louisiana, a ready-mix concrete producer and building materials distributor. Included in the acquisition are two associated companies, Washington Sand & Gravel Company, Inc., and East Louisiana Railway Company. The acquisition brings to 32 the number of plants now operated by Texas Industries, Inc., in Texas, Louisiana, Oklahoma, Kansas and California.

■

Symposium

(*From page* 37)

will be considerably more helpful information on the subject within the next six to eight months.

—R. E. C.

Undercoating Helps

Sir:

This is in reply to your recent letter inquiring about our experience with corrosion in the autoclaves which we placed in service last year. We are indeed confronted with a serious problem, and we face a considerable monetary loss unless an early solution can be found.

In the short time we have been autoclaving we have used practically every rust preventative that seemed to offer any promise at all of slowing down the corrosion of our curing racks. In most cases such materials were ruined in a single cycle of high-pressure-steam curing.

In recent weeks we have been somewhat encouraged by the performance of a material which is widely used as an undercoating for automobiles. This material has stood up exceedingly well under many cycles of curing, and it appears to be most effective in protecting our racks, which is, of course, our immediate concern.

For the long pull we think some other solution must be found to the autoclave corrosion problem, and to this end we are cooperating with a firm of highly qualified consulting engineers in an effort to get to the heart of the matter. A promising procedure of investigation has been worked out, and we have high hopes that some badly needed answers will be forthcoming.

—S. P.

Appoint New Secretary of Chicago Concrete Group

J. D. St. Clair

James D. St. Clair has been appointed executive secretary of the Concrete Contractors Association of Greater Chicago. He will direct the activities of the 300-member organization from its headquarters at 139 N. Clark Street, Chicago. Mr. St. Clair was an engineer for the Cook County (Illinois) Highway Department and a past commander of the American Legion. Included in his duties for the organization, which represents management in the concrete industry, will be the coordination of committees, aiding in labor relations, and staging shows, outings, banquets and conventions.

■

Directory Lists Perlite Brand Names

The perlite industry in less than 10 years of existence has developed more than 150 brand names for expanded perlite products, according to a new "Perlite Brand Names Directory" released by Perlite Institute. The brand names were listed by 63 perlite processing companies in response to an industry-wide survey that turned up 42 different products or applications in which perlite is a primary ingredient. Due to the growing number of uses being developed for expanded perlite, the directory is expected to serve as a valuable guide to the industry in preventing duplication of brand names and at the same time offer convenient where-to-buy information for consumers. Copies of the directory are available from the Perlite Institute, 45 West 45th Street, New York 36, New York.

■

NCMA Launches 1956 Safety Competition

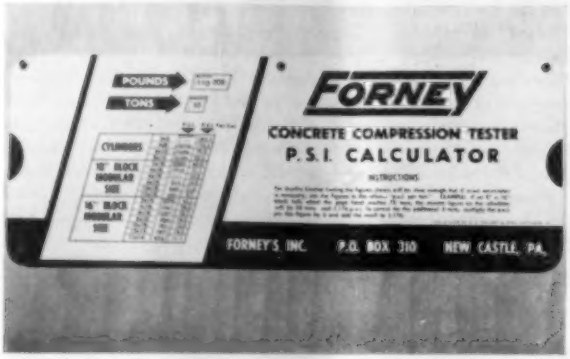
With the mailing of a special safety bulletin and enrollment form for member companies, the National Concrete Masonry Association has officially launched its 1956 safety contest. The contest rules are unchanged from last year.

Entry may be made on either, but not both, a company or an individual plant basis. Companies operating more than one plant may enter some or all of their plants on an individual plant basis, or may enter all plants collectively on a company basis. The contest covers the 12-month period ending July 31, 1956, and trophies will be awarded at the association's 37th annual convention, scheduled to be held in St. Louis February 25 to 28, 1957.

Add PR Man to Los Angeles Office of Cement Assn.

Ross Adams, formerly employed in the general office of the Portland Cement Association, has joined the Los Angeles district office of the organization to fill the newly-created position of public relations representative. He will work with communications media in the area, handle district office advertising, and assist in public relations activities.

EQUIPMENT & MATERIALS



Slide Rule Calculator

THE pocketsize slide rule calculator pictured here is designed to instantly convert the pressure applied to concrete cylinders and blocks into p.s.i. Its range is from 0 to 175 tons, covering 3- by 6-inch to 8- by 16-inch cylinders and 13 standard modular size block. *Forney's Incorporated*, Tester Division, Box 310, New Castle, Pennsylvania.

Block Slumper

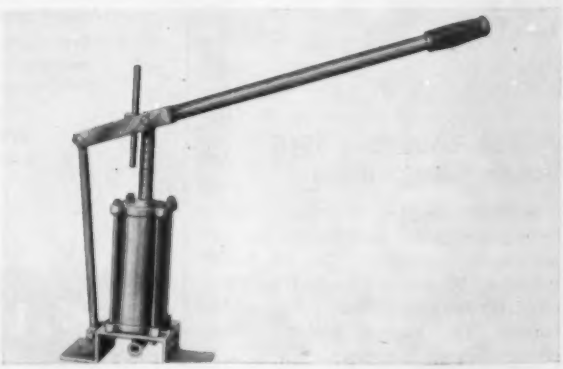
THIS new automatic block slumper insures accurate height control of slump block. According to the manufacturer, the machine has undergone extensive tests with excellent results. Operating on a power roll-away, the slumper is completely automatic and when used with a rich plastic mix gives an unusual variety of face designs. The overall effect of the finished block is somewhat similar to that of rough hewn stone. *Columbia Machine*, Vancouver, Washington.

Bin Vibrator

THIS small bin vibrator for lightweight applications weighs 25 pounds and is designed for use on hoppers, bins, chutes, packers, and all other bulk handling equipment. Built on the rotating eccentric weight principle, the unit makes no more noise than an electric motor, the manufacturer states. It draws 100 watts, delivers a 275-pound impact, and comes with mounting plates for either portable or permanent installation. *The Cleveland Vibrator Company*, 2828 Clinton Avenue, Cleveland, Ohio.

Air Agent Dispenser

THIS dispenser for handling air entraining agents takes the liquid from the original drum container and dispenses it in accurately measured volume into the mix. The complete unit includes necessary valves, combination air induction and fluid discharge tap for standard drums, also hose lines and fittings. This is a closed system under low pressure which permits transferring the agent without spillage, messy handling, or congealing. *General Equipment Company*, Highway 14 East, Box 134, Owatonna, Minnesota.



EXTRA SALES for you in Houses with Basements

Home owners want basements. Tastes differ by regions but for the nation as a whole there is an overwhelming preference for basements.

Latest surveys conducted by national magazines show this demand. Here is the proportion of those surveyed by each magazine who want basements:

American Home	67.0%
Better Homes and Gardens	65.0%
Colliers	73.0%
Curtis Publishing Co.	76.9%
Living	68.3%
McCall's	72.8%
Parents	76.3%
Small Homes Guide	65.2%

Such popularity is easily understood. A basement provides the most economical space for storage, heating plant, playroom, workshop, darkroom or laundry. Putting these facilities in the basement leaves more lot space for lawn, flowers and outdoor living.

Inasmuch as there exists such a strong demand by prospective home owners for basements, they constitute a good source of additional sales. In many designs more block are used in the basement walls and partitions than in the rest of the house. That's why many leading concrete masonry manufacturers find it pays to promote basements—with concrete masonry foundations and partitions—among architects, builders and lending agencies.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Install a BES-STONE Splitter

You can greatly increase block sales and add to profits by using a Bes-Stone Block Splitter. Architects and builders are sold on Bes-Stone Split Block because of its beautiful quarried stone appearance and wide range of adaptability. With its powerful, hydraulic operation, the Bes-Stone Splitter handles up to 900 units per hour. All straight line cuts. No cull block. Quickly adjustable for various heights. Finished Split Block is automatically removed from under the splitting knife by the incoming block. Quiet, safe operation.

Front view showing operator feeding block into Splitter.

. . . and this
PONY TRIMMER
Comes in Handy for
Trimming Block on the Job

Trims off the ends of split block up to 8" in width. Pressure is supplied by a hand-operated hydraulic pump having a capacity of 12 tons. Compact, lightweight, and easily portable from job to job.

Ask your Besser representative for literature, or write:

BESSER COMPANY
Complete Equipment for Concrete Block Plants
ALPENA, MICHIGAN, U.S.A.

Truck Body

A NEW truck body, known as the Hydrahoist, mechanizes loading and unloading operations through the use of hydraulic power activated by the truck engine. A bridge-type superstructure of lightweight tubular steel is the distinctive feature of the unit. Adjustable cables, working over roller-bearing trolley wheels, transmit power for lifting and moving as the trolley telescopes forward or backward. It can handle loads as heavy as 8000 pounds at the rate of six inches per second. *Russell Manufacturing Company*, 1328 Maple Avenue, Haddon Heights, New Jersey.

Fork Lift Truck

THE Ottawa Tracto-Lift, especially designed for outdoor materials handling, has large pneumatic tires on the front drive axle which provide excellent traction and flotation for the economical handling of all materials in outdoor storage areas. Extra ground clearance and shortened wheel base also contribute to the efficiency and maneuverability of the unit, which is available in three basic models: TL-50 (5000 pound capacity),TL-60 (6000 pound capacity), and TL-70 (7000 pound capacity). Ottawa Steel Division, *L. A. Young Spring & Wire Corporation*, Ottawa, Kansas.

Radiophone

NUISANCE noise and undesired transmissions from other two-way radio systems on the same channel cannot unlock the speaker of Motorola's new Private Line radiophone, which hears only calls from Private Line radiophones in the same operation. There are no additional buttons, lights, adjustments or operational techniques involved. Elimination of squelch adjustments reportedly makes Private Line radio even simpler to operate than conventional equipment. A wide choice of mobile and base station models is available in the 25-54 and 144-174 megacycle frequency bands. *Motorola Communications and Electronics Inc.*, Technical Information Center, 4501 W. Augusta Blvd., Chicago 51, Illinois.

Tandem Axle Truck

PICTURED is one of a series of new tandem-axle 6-wheel trucks ranging from 31,000 to 46,000 pounds maximum gross vehicle weight and up to 65,000 pounds maximum gross combination weight. The line is powered by V-8 engines ranging up to 220 horsepower, and has been designed for maximum flexibility and traction in rough off-highway operations. Dodge Division, *Chrysler Corporation*, Detroit 31, Michigan.

NEW LITERATURE

TIRE HANDBOOK—A 64-page illustrated handbook on highway and off-the-road tires includes a tire selection chart and load and inflation tables. Eighteen pages are devoted to a discussion of tire care, and a special section on the care of off-the-road tires suggests ways to improve operating conditions and offers driving tips which extend the life of tires in such service. *B. F. Goodrich Tire and Equipment Company*, Akron, Ohio.

BEARINGS—A 72-page catalog on Shafer self-aliging roller bearings contains specification and data pages on all models of Shafer units. These various models have shaft sizes which range from ¾ to 7 inches. *Chain Belt Company*, Milwaukee 1, Wisconsin.

VIBRATING EQUIPMENT—A 6-page, 2-color folder describes a new type of electro-permanent magnetic vibratory equipment. Called Hi-Vi, this new line of equipment consists of vibratory feeders to feed bulk materials at controlled rates of speed, and unit vibrators to speed and assure the flow of materials from bins, hoppers, etc. *Eriez Manufacturing Company*, Erie, Pennsylvania.

BELT IDLER—A 12-page, 2-color booklet entitled "Limberoller" contains design and application data for those who select, specify, purchase and use belt conveyors to handle bulk materials. *Joy Manufacturing Company*, 307 Oliver Building, Pittsburgh 22, Pennsylvania.

FLOW & LEVEL DEVICES—Automatic sensing devices that can indicate a lack of material supply or flow in a handling operation are described in a 2-page technical reference. The three models discussed are 1) material level control, 2) blade no-flow alarm and, 3) paddle no-flow alarm. Operation and installation of each device is thoroughly described in separate sections. *Richardson Scale Company*, Van Houten Avenue, Clifton, New Jersey.

PRECAST SLABS — A new 8-page design booklet entitled "Flexicore Precast Concrete System" shows how to plan building using precast floor and roof slabs. It illustrates structural, finish, electrical, heating and plumbing details. A copy may be obtained by writing *The Flexicore Company, Inc.*, 1932 East Monument Avenue, Dayton 1, Ohio.

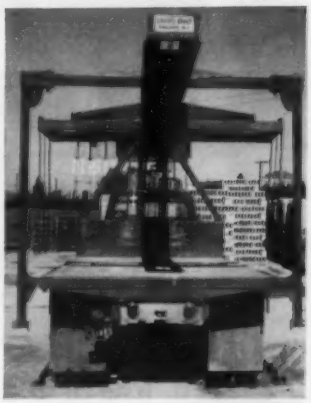
EQUIPMENT & MATERIALS

Compression Tester

COMPRESSION tests of either concrete block or cylinders can be made right on location with a new portable Olsen testing machine. Weighing only 285 pounds, the machine has a capacity of 200,000 pounds compression load. Made to accommodate standard 9- by 9- by 18-inch or 8- by 8- by 16-inch concrete block, the tester can also be used for testing standard 6- by 12-inch concrete cylinders. *Tinius Olsen Testing Machine Company*, 5115 Easton Road, Willow Grove, Pennsylvania.

Hydraulic Unloader

THIS all-hydraulic device unloads block with minimum handling. Its body and hoist design permits side loading by fork lift trucks, and a heavy duty tram rail, which extends beyond the rear of the body, permits spot delivery into excavations. An additional feature are the rear posts which can be swung outward 8 feet or more to permit the handling of maximum loads. *A. Cresci & Son, Inc.*, Vineland, New Jersey.



Moisture Meter

THE Aladin II moisture meter operates on the infra-red principle to measure the moisture content of a given product. Plug it in, place a sample on the test tray, flip the switch, and the percentage of moisture content appears on the dial. *Klock, Inc.*, 385 East Green Street, Pasadena, California.

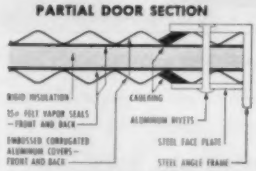
Transmitter-Receiver

PICTURED here is the Compa-Station transmitter receiver which operates in the 25-54 or 144-174 megacycle band. The compact unit includes a 60 watt transmitter and a Sensicon "G" receiver. It features a removable control panel with built-in speaker which can be placed in any one of three positions on the cabinet. *Motorola Communications & Electronics, Inc.*, Technical Information Center, 4501 West Augusta Boulevard, Chicago 51, Illinois.

Above: Universal Kiln Doors, Door Carrier Equipment, and Sliding Utility Doors at Cinder Block & Material Co., Indianapolis, Ind.

Kiln closure equipment is no place for tin-pan construction. Be sure the equipment *you* buy has the *guts* to give you efficient operation and long trouble-free service. Write, wire, or phone for detailed information.

PARTIAL DOOR SECTION

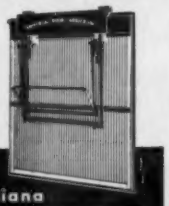


All welded and riveted assembly. Complete internal drainage system for condensation.

Universal

KILN DOORS and DOOR CARRIERS

NEW *Uni-Seal Door Gasket and Cement—*
NEW *Uni-Coat Rust Preventive Coating*



UNIVERSAL DOOR CARRIER, INC.
1117 Cornell Ave., Indianapolis 2, Indiana
"SPECIALISTS IN KILN CLOSURE EQUIPMENT—SINCE 1904"

For 50 Years

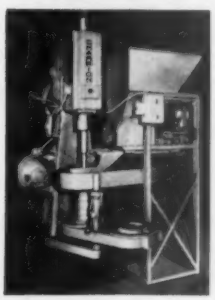
Dunn Machines Have Paced the Drain Tile Industry

T-5

They have pioneered in the production of high quality tile—strong, dense, and truly round.

They have influenced the greater use of concrete tile by lowered prices and easier availability. They have encouraged its manufacturing as a community enterprise.

Efficient, compact, low-investment Champion plants, using local aggregates and local labor, pare production costs to the minimum. Effect tremendous economies in freight, distribution and breakage. Net results: lower costs to consumers, leading to increased sales volumes, and a generous margin of income for the manufacturer.



Investigate — today — the most profitable angle of the concrete products industry. Write for a copy of the Champion catalog.

W. E. DUNN MFG. CO.

526 W. 24th St., Holland, Mich.
976 Dundas Highway Cooksville, Ont.

5 SHADES

from

1 PIGMENT

for CONCRETE PRODUCTS

SYNTHETIC IRON OXIDE RED TERRA COTTA NO. 161

SHADE	PIGMENT	LBS. PER BAG OF CEMENT
Buff	No. 161	½ lb.
Suntan	No. 161	¾ lb.
Coral	No. 161	1 lb.
Salmon	No. 161	1½ lbs.
Terra Cotta	No. 161	2 lbs.

Write us or our nearest representative for working samples and more detailed information

FRANK D. DAVIS COMPANY

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Los Angeles 58, Calif.

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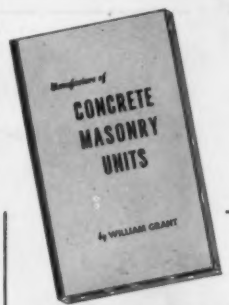


"The best book on BLOCK MAKING ever published"

WILLIAM GRANT'S

MANUFACTURE OF CONCRETE MASONRY UNITS

Thousands of concrete block producers have put the ideas in this book to highly profitable use. In many plants it has become a virtual "production manual" and is referred to constantly to help solve operating problems. "Let's see what Grant says about this" has become a familiar phrase among block men.

There are 19 sections in the book, profusely illustrated, covering every phase of concrete block production, including aggregates, grading and proportioning, mixing and processing, kiln construction, curing, specifications and testing, steam boilers and their care, fuels and combustion, etc.

$4.00

POSTPAID

The only book of its kind on the subject, it is a "must" for every block producer who wants the very latest information on his work. Ideal for training new employes, the perfect refresher course for the old hand. Your copy or copies will be mailed the same day we receive your order and check.

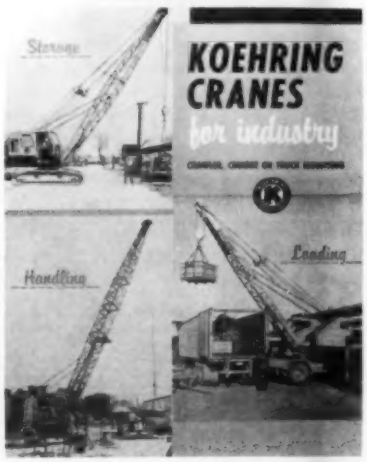
CONCRETE PUBLISHING COMPANY

400 W. Madison Street Chicago 6, Illinois

NEW LITERATURE

2-WAY RADIO—A 10-page booklet entitled "Increased Profits for Concrete Producers through Complete Control of Ready Mixed Trucks with RCA 2-Way Radio", through the use of actual case histories, details the ways in which ready mixed producers are using mobile radio to increase profits. *Radio Corporation of America*, Building 15-1, Camden 2, New Jersey.

CRANES—Bulletin K474 entitled "Koehring Cranes for Industry" pre-

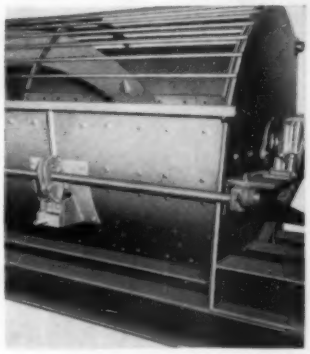


sents an illustrated discussion of the Koehring line of crawler and rubber tire mounted cranes for use in all types of industrial material handling work. *Koehring Company*, Milwaukee 16, Wisconsin.

MULTIPLE V-BELT DRIVES — The origin, history and development of the modern multiple V-belt drive is discussed in a 36-page pocket size booklet entitled "Modern Multiple V-Belt Drives". The final chapter of the booklet furnishes the answers to a number of questions relating to some of the basic principles and practices involved in the engineering and use of multiple V-belt drives. A copy of Booklet 20E8297 may be obtained by writing *Allis-Chalmers Manufacturing Company*, 981 S. 70th Street, Milwaukee, Wisconsin.

COLOR BULLETIN—A bulletin entitled "Cement Colors", as well as an information sheet on the use of colors in concrete masonry units may be obtained by writing *Frank D. Davis Company*, 2704 Santa Fe Avenue, Los Angeles 58, California.

EQUIPMENT & MATERIALS



Mixer Sampling Door

THIS sampling door permits a mixer operator, without disengaging the clutch or stopping the mixer, to take samples of mix from the mixer without exposing his hands and arms to the dangers of the revolving mixer blades. Furnished as a complete assembled unit, it can be easily and quickly installed just below the charging shelf on all sizes of Stearns mixers equipped with Ni-Hard sectional type drum liners. *Stearns Manufacturing Company, Inc.*, Adrian, Michigan.

Trailer Dump

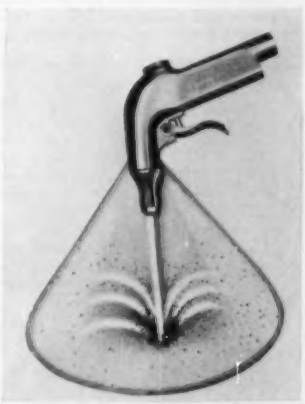
THIS tandem axle trailer dump, with front mounted telescopic hoist, is designed for operation with single rear axle tractors. Offered in body lengths from 19 to 24 feet, Model STMF Transporters have payload capacities of 10 to 40 cubic yards. Three optional Uni-scopic hoists, with lifting capacities up to 30 tons, are available. *Galion Allsteel Body Company*, Galion, Ohio.

Concrete Power Buggy

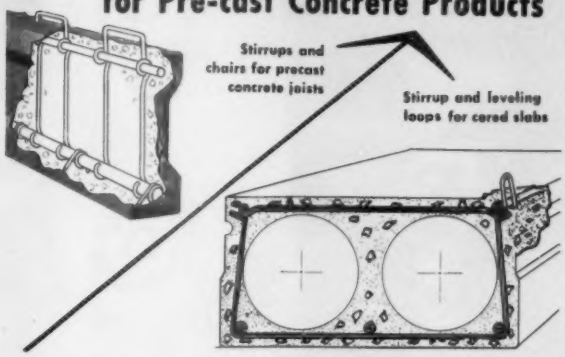
THIS concrete power buggy incorporates automotive type drive and instantaneous direct shift from forward to reverse. It is said to have remarkable ramp maneuverability, being able to turn around within a radius of its own length; it can back down when necessary or be safety-lock braked while carrying maximum load. Its heaped capacity is 13½ cubic feet, and its maximum travel speed empty is 17 miles per hour. *Creative Metals Corporation*, 1290 Powell Street, Emeryville, California.

Safety Air Gun

THIS Guardair safety air gun is designed to protect the operator from dust or other debris blown from an area being cleaned by the central air jet shot from the unit's nozzle. A second jet of air is blown from the gun simultaneously with the central cleaning jet, providing a protective shield of high pressure air which prevents debris from flying upward into the operator's face. *Hydraulic Manufacturing Company*, Kiel, Wisconsin.



Stirrups, Chairs, Wire Form Hangers for Pre-cast Concrete Products



Special Sizes Made on Request. Prompt Delivery All Standard Sizes.

- **Stirrups and Chairs:** Designed for ease of use in the reinforcing of precast concrete joists, prestressed concrete cored slabs and other products.
- **Wire Form Hangers:** Carefully shaped to provide a fast method of installing formwork between joists.

SEND for prices, literature, samples Today!

serving the Concrete Products Industry

AUTOMATIC SPRING COILING CO.

4047 West Thorndale Ave., Chicago 30, Ill.

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IT TURNS IN THE MIDDLE— TAKES THE CORNERS LIKE A BREEZE

United by a joint

Write for literature

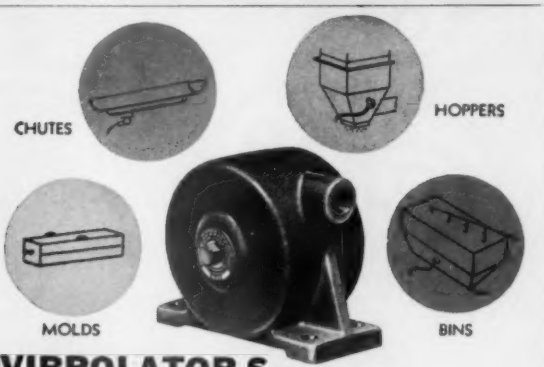
Erickson has created a revolutionary new idea in platform trucks—it's ARTICULATED—with a joint or pivot between platform and drive wheels. Models P-7A and P-10A are the units for the new and unusual operations,—autoclaves, for instance—where you need utmost maneuverability with heavy duty capacity. With the ARTICULATED design, platform bed can be made up to 10 or 12 feet and still handle heavy, bulky loads with ease. These articulated models are in addition to the veteran Erickson P-5 and P-7 standard models, and built with the same rugged durability.

the **WORKHORSE** *of* **LIFT TRUCKS**

Erickson

POWER LIFT TRUCKS, Inc.

221 St. Anthony Blvd. N. E., Minneapolis 18, Minn.



VIBROLATOR S

MOVE CEMENT WET OR DRY

EFFECTIVE, QUIET, HARMLESS TO EQUIPMENT

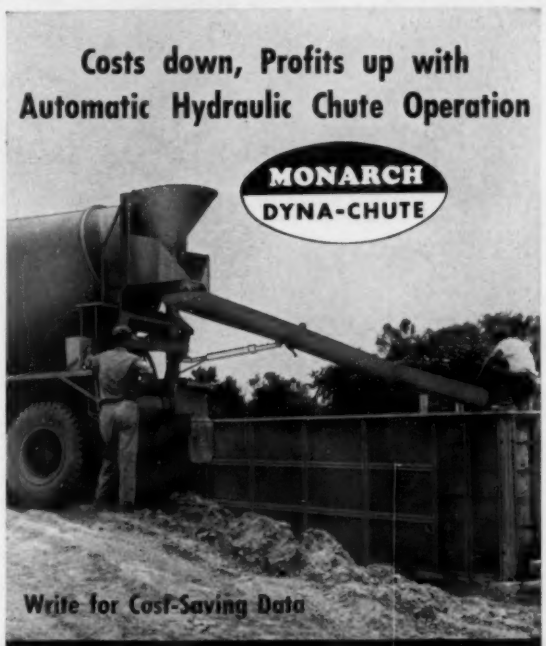
When you move sand or cement, wet or dry materials—check the plus features Vibrolators offer. Instantly self-starting without fail, all-directional vibration that forbids sticking but does not harm equipment. Only one moving part—a steel ball—that needs no maintenance or lubrication. So quiet and reliable you'll bolt it on and forget it!

Write for catalog. You will also receive form for describing your problem. No obligation!

MARTIN ENGINEERING CO.

155 Concord Street **Neponset, Ill.**

Costs down, Profits up with Automatic Hydraulic Chute Operation



Manufacturers of Hydraulic Controls

MONARCH ROAD MACHINERY COMPANY

1331 Michigan St., N.E. — Grand Rapids 3, Mich.

EQUIPMENT & MATERIALS

Portable Speed Indicator

THE Sun portable speed indicator measures accurately the speed of shaft rotations in rpm, or the speed of belts or other surface movements in feet per minute. Self-contained, the unit is easy to use; the worker simply snaps on the adapter, applies it to the surface to be measured, and reads the meter. The unit is available in a choice of adapter sizes and meter ranges. *Sun Electric Corporation*, Harlem and Avondale, Chicago 31, Illinois.

Power Loader

PICTURED here is the Daybrook-Woodside power loader that is said to be rugged, sturdy and reliable in operation from any location in which a truck can be used. Compact and readily accessible, the unit fits any standard truck chassis and is operated from a power take-off through the engine transmission. The unit has a maximum capacity of 4000 pounds. Daybrook Hydraulic Division, *L. A. Young Spring & Wire Corporation*, Bowling Green, Ohio.

Air Eliminator

THIS air eliminator, called the Gorton H. P. No. 12, is designed for fast venting and automatic closing on steam processing equipment using steam pressures from 0 to 150 pounds. The unit is said to offer design improvements that provide greater dependability and longer valve life under the extreme conditions of high pressure steam venting. *Gorton Heating Corporation*, Cranford, New Jersey.

Concrete Column Forms

PICTURED here is Deltube, a new plastic lined fibre form for round concrete columns. The plastic lining, according to the manufacturer, does not adhere and leaves a smooth dustless finish on the column. The body of the tube is constructed of plys of long jute fibre kraft. All plys are bonded with waterproof adhesives, in addition to which the outer ply is asphalt saturated. *Delta Company*, 333 West 24th Place, Chicago, Illinois.

CLASSIFIED ADS

$10.00 per column inch. Closing date for classified advertising copy is 15th of preceding month.

USED MACHINE FOR SALE

1953 Hydrobloc 3-block, with off-bearing hoist and molds for brick and 4, 6, 8, and 12" block. In good operating condition. For quick sale $4,500.00 f. o. b. Birmingham, Ala.

Address Box E-12, care CONCRETE
400 W. Madison St., Chicago 6, Ill.

BLOCK PLANT FOR SALE

Fully equipped with Fleming machine. Overhead bins in building. Boiler with steam curing rooms. To be sold because of death.

MRS. GERTRUDE MANN
Seymour, Indiana

FOR SALE

1955 model 650 Ford tractor with Wagner industrial loader; dozen blade attachments; rear mounted Shawnee backhoe with extra bucket. Less than 500 operating hours, perfect condition.

MCGILL READY-MIX CONCRETE CO.
Peru Indiana
Phone: Gridley 3-6151

SALES ENGINEERS WANTED

Manufacturer of block plant machinery and equipment, marketed nationally, has several territory openings offering good immediate earnings, excellent future potential. Experience selling to block plants desired. Write in confidence, sending complete resume of experience and personal data.

Address: Box E-9 care CONCRETE
400 W. Madison St., Chicago 6, Ill.

SMITHKO CEMENT COLORS

- **The Standard of Comparison for Nearly Forty Years**
- **65 Shades to Choose From Including Many New Colors**

Send For Latest COLOR CARD, Samples, Technical Brochure, and Quotations.

SMITH CHEMICAL & COLOR CO.
53-57 John St., Brooklyn 1, N.Y.

WANTED

Used Besser mold box to make 4-6 inch thick barrell block at a time. Vibrator shafts not needed. Write

HOVEY CONCRETE PRODUCTS CO.
Santa Fe New Mexico

FOR SALE

Fork and platform power lift trucks, used and guaranteed factory rebuilt.

Erickson Power Lift Trucks, Inc.
St. Anthony Blvd. & University Ave., N. E.
MINNEAPOLIS 18, MINNESOTA
PHONE—STERLING 1-9508

FOR SALE

Have increased our production with other equipment—will sacrifice three at a time Lith-I-Bar machine, complete with 4, 6, 8, 10, and 12 inch and 8 inch header block attachment with other special and repair parts. Also two Erickson platform trucks in running condition at $25.00 each.

Address: Box E-10 care CONCRETE
400 W. Madison St., Chicago 6, Ill.

WANTED

Concrete block plant superintendent, must be familiar with Besser Vibra-Pac and allied equipment. In replying please give references, salary expected and if available for an interview. Refer inquiries to attention Edward Olsen.

BADGER CONCRETE COMPANY
P.O. Box 913 Oshkosh, Wis.

FOR SALE — CONCRETE TRUCKS — ENTIRE FLEET

7 Tandems '52 through '56 Worthington 4½ yd. mixers mounted.

6 Single axle '47 through '55 Jaeger and Worthington mixers mounted.

All in superior condition, counters on most.

ERIE BUILDERS CONCRETE CO.

13th & Myrtle St. Erie, Pa. Phone 4-1531

TERRITORIES OPEN

For full time salesman:

1. **New England States**
2. **Western New York & Western Penna.**
3. **Eastern Penna., New Jersey, New York City, and Long Island.**

For manufacturers' representative:

1. **West Coast**
2. **Virginia, West Virginia, Maryland, Delaware and Washington, D. C.**

Sell established line of chemicals manufactured especially for the concrete industry.

Address: Box E-13, care CONCRETE

400 W. Madison St., Chicago 6, Ill.

FOR SALE

One Besser Super Vibrapac. Rear pallet feed. Including all motors, starters and pneumatic off-bearer. In good operating condition. Replaced by larger Besser equipment.

Address: Box E-14, care CONCRETE
400 W. Madison St., Chicago 6, Ill.

WANTED

Used lintelator and 80 yard capacity hopper.

Address Box E-15, care CONCRETE

400 W. Madison St., Chicago 6, Ill.

FOR SALE

Four KB7 International Tandems with 3½ yd. Rex mixers, $1,850.00 each. Four Smith 3½ yd. mixers, $900.00 each. Two 4½ yd. Rex mixers, $1,250.00 each. Two Barber-Greene Loaders, $1,250.00 each. One Haiss Loader Model 75, $4,500.00. One 150-ton 2-compartment bin. Complete 180-ton bin, 3-compartment with scales. 60 ft., 20 inch belt elevator, $850.00. 60 ft., 24 inch portable conveyor, $2,000.00. 3 ft. by 8 ft. 3-deck vibrating screen. Used portable crushing plant, $2,000.00.

WESTERN EQUIPMENT SALES ENGINEERS
P. O. Box 391 Kenosha, Wis.
Phones: Olympic 21743-48755

USED BLOCK MACHINES

Stearns Zipper—Jefferson, Wisconsin.
Kent Blockmaker—Saginaw, Michigan.
Two-block Van-U-Matic molds, offbearer and steel plain pallets. $1,500.00—Aberdeen, South Dakota.
Two-block Praschak with 4"-8"-10"-12" molds and pallets. $1200.00.
Stearns Clipper—Conoquenessing, Pennsylvania.
Three-block plain pallet Flam machine, reasonable—Chatham, Ont., Canada.
Besser K-12 with mixer, 3000 steel plain pallets and steel racks $2500.00 complete — Cannon Falls, Minnesota.
Two-block plain pallet Multico complete with molds, offbearer, pallets and racks, $500.00 down—Mankato, Minnesota.
Joltcrete No. 9 still operating—Rockford, Ill., Durham, Ont., Canada.
Joltcrete No. 7—Quincy, Ill., Two Harbors, Minn.
Hydro-Korpac—La Porte, Indiana.
Flemings—Lith-I-Blocks—Columbias.
I also have on hand quite a supply of cored pallets, modular and full size, a few used mixers, boilers, conveyors and bucket elevators. Also I list a few plants that want partners with a little cash and lots of experience.

MID-WESTERN CONCRETE EQUIPMENT CO.
Matteon, Illinois

Reinforcement Group Elects Ivy Smith

I. H. Smith

Ivy H. Smith, Jacksonville, Florida, and M. E. Capouch, Cleveland, Ohio, have been named president and vice-president respectively of the Wire Reinforcement Institute for the coming year. The national trade association of steel welded wire fabric manufacturers voted the two men into office during the recent annual meeting at White Sulphur Springs, West Virginia.

Smith is president and founder of the Jacksonville company bearing his name. His company manufactures reinforced concrete pipe as well as reinforcing fabric. He was president of the American Concrete Pipe Association several years ago.

Capouch, a veteran in the steel industry, is manager of construction materials sales for the American Steel and Wire Division of United States Steel, with offices in Cleveland, Ohio. He has been a long-time leader in the Institute's activities and is a former W.R.I. president.

■

New Type of Pipe Eliminates Steel

A new type of concrete pipe is being manufactured which will withstand high pressures and crushing loads. Named the "Deckon" pipe, it consists of a concrete pipe supported against hoop and beam stresses by a coating of polyester resin reinforced with glass fibers.

The concrete core pipe is manufactured by the centrifugal process in diameters ranging from 6 inches to 36 inches, and lengths up to 12 feet. The ends of the pipe are cast square and its thickness is somewhat less than that normally used for standard concrete pipes.

It is stated that pipes made by the process compare favorably in both performance and price with cast-iron or steel of the corresponding size and class, and show small savings in corresponding weights, but are slightly larger in over-all dimensions.

Incidental to the resistance to internal bursting pressures and sealing against porosity achieved by the glass reinforced polyester resin armor to the concrete pipe is its chemically inert, non-metallic nature rendering it resistant to sulphate and other chemical attack, unaffected by cathodic action and not subject to bacterial growths, besides imparting high crushing strength.

This high crushing strength has given rise to a secondary use for pipes made by the process. By suitably armoring standard concrete pipes with glass reinforced polyester resin, crushing loads of 3,000 pounds per linear foot have been withstood without failure.

■

Western Pipe Makers Meet at Fresno, Calif.

Over 100 manufacturers of concrete pipe and others associated with that activity met at Fresno, California, late in April for the 37th annual meeting of the Western Concrete Pipe Association. The program of the two-day meeting included a report on specification changes presented by Howard F. Peckworth, managing director of the American Concrete Pipe Association. A guest speaker also discussed the use of concrete pipe in heating systems under the concrete floors of general utility buildings.

All the officers of the association were reelected to serve for another year. It was announced that the fall meeting of the group will be held at the Hotel Utah in Salt Lake City October 25 and 26.

■

Denver Ready Mix Firm Installs 2-Way Radios

Two-way radio communication equipment has been installed in the 40 mobile mixing units and the five batching plants operated by Ready Mixed Concrete Company, Denver, Colorado. According to Frank P. Spratlen III, an executive of the firm, shakedown tests have been completed on the new equipment and it has been found entirely satisfactory in the metropolitan area served by the company.

New Plants and Expansion Programs

Some recent announcements of new plants and the expansion of existing plants in the block, ready-mixed concrete products fields:

Box Mix Corporation, Norfolk, Virginia, has begun operations for the manufacture and packaging of dry ingredients to make concrete, plaster, masonry paints, and related products.

Caro Ready-Mix has established a plant at Caro, Michigan.

Hawkeye Concrete Products Company, Morning Sun, Iowa, will establish a branch manufacturing and sales plant.

Meekins, Incorporated, has established a radio-dispatched transit-mixed-concrete plant at Fort Lauderdale, Florida.

Southern Block and Pipe Corporation, Norfolk, Virginia, will double its capacity.

Standard Paving and Materials Limited, Toronto, Ontario, has acquired effective control of the following companies: E. V. Breckon, Limited; Mixed Concrete Supply, Limited; Red-D-Mix Concrete (Hamilton) Limited, and Mixed Asphalt and Contractors Supplies, Limited.

■

Offer Suggestions on Using Leftover Concrete

A technical information letter addressed to members of the National Ready Mixed Concrete Association suggests several solutions to the problem created by rejected or leftover concrete. The letter makes reference to the following practices:

1) Using the leftover concrete to pave roadways and other areas around the plant — a job that can readily be done a little at a time with very simple form work and a limited amount of labor.

2. Using the concrete for making salable items of precast concrete, such as stepping stones, splash block, driveway curbs and similar items.

3) Adding a surplus of water to the concrete and dispose of it along with regular wash water. Member plants use a variety of systems of settling basins for this purpose, as well as merely disposing of the material in fill areas.

The association invites all ready-mix producers to send in their solutions to this disposal problem.

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THE EDITOR'S PAGE

WILLIAM M. AVERY

No Place for Neutrality

JUDGING from the tone and content of a number of ad clippings which have crossed our desk in recent months, the concrete industries appear to be right in the middle of a vicious battle being staged by two trade union groups to determine which shall obtain the lion's share of basement construction work. The latest, and by far the worst, example of this activity to come to our attention is an unsigned advertisement which appeared in the *Illinois State Journal and Register.*

"Don't gamble with the roots of your home" the ad trumpets in bold type. "Buy first quality in the foundation of your home," it continues. "Why take second choice? Yes, now in Springfield and surrounding area you are able to contract a poured concrete foundation for the cost of a concrete block job. Insist your contractor gives you the best—don't let him sell you second choice." The ad shows two line drawings—one of what purports to be a block basement that leaks like a sieve (with a caption that reads "Don't take a chance on this"), and the other presumably showing a poured concrete basement that looks somewhat dryer than the Sahara. The caption on the latter reads "Go first class and buy this".

At the very least the whole implication of this message is absolute nonsense! At the worst it represents a shocking brand of dishonesty that in the long run can only serve to undermine public confidence in all forms of concrete and concrete construction. Nobody having the slightest knowledge of the subject believes for a moment that the use of either poured concrete OR block provides any guarantee at all that a particular basement will be dry.

The quality of either of these materials undoubtedly has a bearing on the problem, but the quality and integrity of the workmanship that goes into their use on the job site is certainly no less critical in determining the outcome. Advertising that tries to suggest that satisfactory results can be guaranteed by using one material rather than another is basically dishonest.

We hope and believe that producers of both block and ready-mixed concrete will avail themselves of every opportunity to condemn advertising of this type—wholly without regard to whether their particular material is the victim or the seeming beneficiary of the attack. It is in the very nature of things that these two basic materials of construction must occasionally compete for the same work, but neither interest can in the long run expect a particle of benefit from a mud-slinging campaign directed at the other. As vitally interested bystanders we have an obligation to make our views known.

The STEARNS ELECTRO MATIC is breaking all records!

...and here's why!

NO CAMS!
NO OPEN GEARS OR PINIONS!

The newest *proven* concept of power application in block machines for *faster* cycling.

Individual, motor driven, enclosed gear units, provide crank controlled harmonic motion to all functional machine movements, for rapid acceleration and deceleration, and smooth sequence operation. Gear units are interchangeable, with gear running in sealed oil bath for trouble-free operation and service . . . slashes maintenance costs! UNIFORM COMPACTION IN ALL COMPARTMENTS with Stearns unidirectional dual shaft vibration, stationary mounted, with TWIN 7½ HP 3500 RPM motors. The ELECTROMATIC can be easily converted to 12 inch, or 4 inch high units . . . added protection on your investment, for the growing specialty market. Write today for full information.

STEARNS

MANUFACTURING COMPANY · INC.

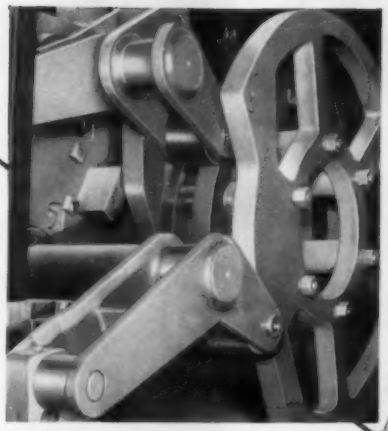
ADRIAN, MICHIGAN, U.S.A.

*Location furnished upon request.

COMPLETE CONCRETE PRODUCTS PLANT EQUIPMENT

4 Big Reasons *Why*

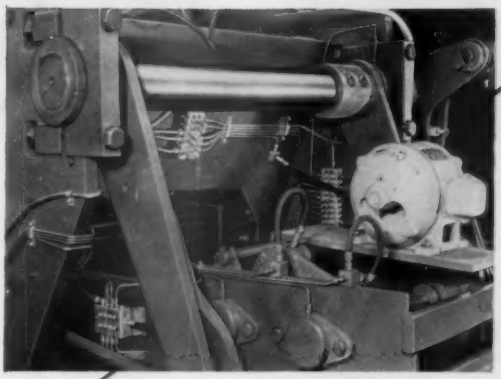
Block Makers Prefer VIBRAPACS



1

CAM OPERATED

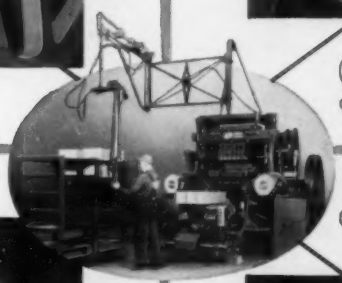
The famous Besser cam and roller principle of power application assures dependable operation. The slow revolving cam, with a roller riding on its surface, delivers power with pin point precision and with steady, uninterrupted regularity.



2

AUTOMATIC LUBRICATION

The Vibrapac now lubricates itself . . . at regular intervals . . . while it is running. No more downtime for lubrication. No premature wear of insufficiently lubricated parts. And no over lubrication.



3

ANTI-FRICTION BEARINGS

The Vibrapac is completely equipped with anti-friction bearings. Pallet receiver shaft assembly, for example, has a 7½" diameter Timken Roller Bearing. Assures smooth, trouble-free operation and a lifetime of service.

4

2000 LBS. PRESSURE

VIBRATION is under pressure of 2000 pounds. Two 10 hp. high starting torque motors give undirectional vibration under this pressure.

For more than 50 years, block makers have looked to Besser for better block machines. Today's Vibrapac produces high quality block faster and with a minimum of downtime. The four illustrations above explain why the Vibrapac excels. They spell profits for block makers everywhere. The Vibrapac gives more . . . more power, more smoothness, more ruggedness, and, what every block maker is primarily interested in, greater production. No wonder the Vibrapac is universally regarded as the world's leading concrete block machine.

Plan now for increased production of quality block. Replace antiquated, cost-consuming machines with more dependable Vibrapacs. Your nearby Besser representative will gladly give you all the facts.

BESSER Company

World's Leading Manufacturer of Concrete Block Machinery

BOX 127, ALPENA, MICHIGAN, U. S. A.